Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

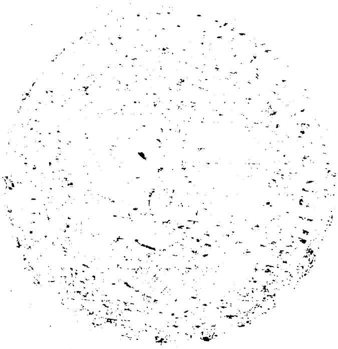
U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY.—Bulletin No. 75.
D. E. SALMON, D. V. M., Chief of Bureau.

RECORDS
OF
DAIRY COWS IN THE UNITED STATES.

BY

CLARENCE B. LANE, B. S.,
ASSISTANT CHIEF OF DAIRY DIVISION, BUREAU OF ANIMAL INDUSTRY.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1905.



LETTER OF TRANSMITTAL.

United States Department of Agriculture,
Bureau of Animal Industry,
Washington, D. C., September 28, 1905.

SIR: I have the honor to transmit herewith a manuscript entitled "Records of Dairy Cows in the United States," prepared by Clarence B. Lane, B. S., assistant chief of the Dairy Division. The paper is arranged in two main divisions, the first part dealing with grade and native cows, and the second with purebred cows. These main parts are preceded by introductory notes and succeeded by a chapter of conclusions, which serve to bring out more forcibly the practical value of the entire work. It is hoped the publication of these records will act as an incentive to progressive effort among our dairymen and to the raising of the standard of their herds.

No complete compilation of this nature is at present extant in the United States, and as the work is calculated to be of much benefit to the large class concerned in the dairy industry, I recommend its publication as Bulletin No. 75 of the series of this Bureau.

Respectfully,

D. E. Salmon,
Chief of Bureau.

Hon. James Wilson,
Secretary.

Dy-64.

CONTENTS.

Page.

Introductory

  Value of dairy records 9

  Accurate records necessary 10

  The keeping of records 11

  Methods of estimating records 12

  Raising the standard 13

    Statements from dairymen 16

  How the records for this work were collected 17

Part I.—Records of grade cows 19

  Milk and butter-fat records of grade and mixed herds for one year 21

    Records procured direct from dairymen 21

      Summary of results secured 21

      Descriptions of a few profitable herds 21

    Records of herds owned by creamery patrons 21

      Records of Wisconsin creamery patrons 31

      Investigations among creamery patrons in New York 35

      Results of investigations among creamery patrons in Pennsylvania 39

      Investigations of dairies in Iowa 41

    Herd records for one year obtained from dairy papers and periodicals 43

    Investigations of dairy herds by experiment stations 44

      Work done by the Illinois Experiment Station 44

      Investigations made by the Arizona Experiment Station 50

    Records of dairy herds at experiment stations 51

      Summary of results at eighteen agricultural colleges and experiment stations 51

      The herd at the Wisconsin University Agricultural Experiment Station 54

      The herd at the New Jersey Agricultural College farm 55

      The herd at Cornell University Agricultural Experiment Station 56

      The herd at the Vermont Experiment Station 57

      The herd at the Agricultural College, Utah 58

  Milk and butter-fat records of grade and mixed herds for series of years 61

    Records of experiment station herds 61

    Herd records for series of years obtained from dairy papers and other sources 63

  Milk and butter-fat records of single grade cows for one year 63

  Milk and butter-fat records of single grade cows for series of years in experiment station herds 65

    Records of single grade cows for series of years in experiment station herds 65

    Records of grade and native cows for series of years reported by dairymen 78

  Milk and butter-fat records of single grade cows for short periods 79

Page.

Part II.—Records of purebred cows 81
  Milk and butter records of purebred herds for one year 81
    Summary of data relating to more than 100 purebred herds 81
    Description of purebred herds 90
  Milk and butter-fat records of purebred herds for series of years 101
  Milk and butter-fat records of single purebred cows for one year 104
  Milk and butter-fat records of single purebred cows for series of years 123
    Some remarkable long-period records 133
  Milk and butter-fat records of purebred cows for short periods 135
Conclusions 167
Appendix 170
  Breed tests—comparative yields of milk and butter fat 170
  Records made at Columbian Exposition, 1893 171
  Results of tests at Pan-American Exposition, Buffalo, 1901 176
  St. Louis World's Fair cow demonstrations, 1904 178

ILLUSTRATIONS.

PLATES.

Facing page.

PLATE 1. Fig. 1, Dora. Grade Guernsey. Fig. 2, Eva. Grade Jersey 65
2. Fig. 1, Donation. Grade Holstein. Fig. 2, Queen. Grade Holstein. 65
3. Fig. 1, Lady. Grade Red Polled. Fig. 2, Duchess. Grade Shorthorn 69
4. Fig. 1, Imp. Flora 3rd of Bonshaw, No. 15575. Purebred Ayrshire. Fig. 2, Miss Ollie No. 12039. Purebred Ayrshire 105
5. Fig. 1, Durwood 12680. Purebred Ayrshire. Fig. 2, Mysie of Barcheskie 14952. Purebred Ayrshire........ 105
6. Fig. 1, Beinwyl 720. Purebred Brown Swiss. Fig. 2, Kaiserin, 850. Purebred Brown Swiss 109
7. Fig. 1, Pretty Pet 10579. Purebred Devon. Fig. 2, Songstress 2nd 12033. Purebred Devon........ 109
8. Fig. 1, Lady Clarence 2nd 545. Purebred Dutch Belted. Fig. 2, Countess Warwick 2nd 719. Purebred Dutch Belted........ 109
9. Fig. 1, Yeksa Sunbeam 15439. Purebred Guernsey. Fig. 2, Imp. Hayes Rosie 15476. Purebred Guernsey 113
10. Fig. 1, Auricula 2nd 12209. Purebred Guernsey. Fig. 2, Mary Marshall 5604. Purebred Guernsey........ 113
11. Fig. 1, Shadybrook Gerben 43753. Purebred Holstein. Fig. 2, Sadie Vale Concordia 32259. Purebred Holstein 117
12. Fig. 1, Belle Sarcastic 1118. Purebred Holstein. Fig. 2, Aaggie Cornucopia Pauline 48426. Purebred Holstein 117
13. Fig. 1, Loretta D 141708. Purebred Jersey. Fig. 2, Eurybia 143822. Purebred Jersey 121
14. Fig. 1, Brown Bessie 74997. Purebred Jersey. Fig. 2, Agnes of St. Francis 10619. Purebred Jersey........ 121
15. Fig. 1, Mayflower 2nd 8025 (A 12). Purebred Red Polled. Fig. 2, Chloe T 10097 (T 1). Purebred Red Polled 165
16. Fig. 1, Rowena 2nd. Purebred Shorthorn. Fig. 2, College Moore. Purebred Shorthorn 165
17. Imp. Rosemary and Imp. Nonpareil. Purebred Shorthorns...... 165

TEXT FIGURES.

Page.

FIGURE 1. Adjustable record board used at the New Jersey Experiment Station........ 13
2. Apparatus for Babcock test........ 15
3. Reading the fat column in Babcock test 16
4. Scales, record sheet, and samples conveniently arranged........ 45
5. Chart showing milk, butter fat, and solids not fat yielded by cows of Utah Experiment Station herd 59
6. Chart showing yearly returns per cow of Utah Experiment Station herd 60

RECORDS OF DAIRY COWS IN THE UNITED STATES.

By Clarence B. Lane, B. S.,

Assistant Chief of Dairy Division, Bureau of Animal Industry.

INTRODUCTORY.

The condition of the farming industry as seen on the average farm points to the need of better business methods and more definite knowledge of the sources of profit and loss. In no department connected with the farm is there more need for absolute data than in the dairy. The records of progressive and unprogressive dairymen indicate that there is no business which shows a greater range of profit than that of dairy farming. Investigations of creamery patrons (see pp. 31-42) illustrate this most strikingly and show that one dairyman frequently makes double the profits of his neighbors. In an investigation of the records of 100 creamery patrons, conducted by Hoard's Dairyman, it was shown that one of them made $2.30 for every dollar invested in feed for his cows, while a neighbor made $1 and another lost 50 cents. All had the same soil and the same market. Not one in ten read any dairy literature and thirty-eight out of the hundred kept cows at an actual loss. The difference in their profits, therefore, must be accounted for largely by the difference in the intelligence put into their business. Such a wide range of profit rarely exists in other kinds of business. The village merchants and grocers, for example, average about alike in the knowledge of their business, their prices are nearly the same, and they realize about an equal per cent of profit.

Good judges believe that one-fourth of the cows in the entire country kept for milk do not pay for the cost of keeping, and nearly one-fourth more fail to yield an annual profit.

The objects which the writer has kept in view in the preparation of this bulletin may be summarized as follows:

(1) To bring together into convenient form for reference authentic milk and butter records of purebred, grade, and native cows in this country, thus enabling the Dairy Division to readily answer the questions which are constantly being asked on the subject.

(2) To show dairymen the importance of keeping records complete enough to give the dairy performance of every cow in the herd, thereby making it possible to weed out the unprofitable animals.

With the application of the scales and the Babcock test, combined with better care and feed, both the production and profits of many herds could be doubled, and this with little expense.

(3) To induce dairymen to keep records, not only for the additional profits, but for the increased interest which they give to all connected with the work, and the business methods which they have a tendency to promote.

(4) To show the possibilities of production with different grades and breeds of cows under different conditions, thereby giving encouragement to the farmer and an incentive to higher standards and greater profits.

It has been the aim in preparing this bulletin to include records sufficient in number and variety to be of value to breeders and dairymen and all interested in the performance and improvement of the dairy cow. A large number of private records are presented which have no official indorsement, but it is believed that the greater part of these may be considered reasonably accurate and that they will add to the interest of the dairy industry. In all cases the name of the owner is given in connection with the records.

The writer desires to thank all breeders, dairymen, editors of agricultural and dairy periodicals, and the men of the experiment stations who have generously contributed to this bulletin.

VALUE OF DAIRY RECORDS.

Records of the performances of dairy cows form the only accurate and safe basis for judging their value. It is the constant aim of progressive dairymen to improve their herds, and such improvement must depend largely upon culling the herd and getting rid of the unprofitable animals. From the breeders' standpoint records are especially valuable in assisting in finding customers for their stock. Many buyers insist on seeing records of dairy performance before purchasing.

A record is also of great help to the feeder. If he knows exactly what a cow is doing he can prepare the ration accordingly and often feed more economically. Again, a daily milk record enables a dairyman to detect the approach of sickness in a cow, and thus to take steps to ward it off.

Great inspiration is obtained from keeping a record, and nothing gives a dairyman more satisfaction than watching the improved returns from his herd.

Many of the State experiment stations have shown the importance of keeping careful records of the individual cows, and thus determining which are profitable and which are kept at a loss. At the Georgia station the best cow in the herd gave 7,968 pounds of milk, which produced butter worth $115.44, while the poorest cow in the same herd gave only 2,788 pounds of milk, with a butter value of only $41.63.

At the Michigan station the profit on the milk from different cows varied from $6.08 to $94.05. At the New Jersey station the profits from different cows varied from 13 cents to $49.72, when milk was valued at $1 per hundred pounds. At the Connecticut (Storrs) station during the year 1903 the best cow gave a profit of $54.72 and the poorest $2.76. In this case the best cow gave a profit of nearly twice that of the average cow in the herd. At the World's Columbian Exposition, Chicago, the cow with the best individual record made two and one-third times as much butter as the poorest of the seventy-five.

While the differences between the best and poorest animals in the cases given are great, the poorest cows reported are not so poor as many of those kept by dairymen who make no accurate tests and who rarely know anything of what each animal is actually doing.

The Illinois Experiment Station, after testing a number of herds in that State, comments as follows:

> Nearly every herd we have tested has proved that some of the cows produce butter enough to pay a handsome profit to the owner, while others that require the same feed, care, and time spent in milking do not make butter enough to pay for the feed they eat. * * * One man who kept twelve cows got more money for the milk of three of them than he did for that of all the other nine put together.

A Wisconsin dairyman testifies to the value of records as follows:

> Eleven heifers in my herd have given me during the first milking season 2,807 pounds of butter, which has netted 20.4 cents per pound, an average of $51 from each heifer. Allowing $40 for feed, I have a net average profit of $11 per head. In the absence of a daily record I might have been content with the result and gone on in blissful ignorance of the fact that five of the heifers, instead of giving me a profit of $11 each, have actually lost for me an average of $8.20 each. Neither would I have known that six of the heifers have given me an average profit of $27, nor that, if I were not the unfortunate owner of the five poorest heifers, my whole profit, instead of being $121, would have been $162, or $41 more profit with not more than half the work.

ACCURATE RECORDS NECESSARY.

In a general way the farmers know the good milkers in their herds and in the same general way they weed out those that are considered inferior, but only a few breeders, whether of common or purebred stock, use the scales or the fat test to supply definite knowledge. When the milk is not weighed the amount is almost sure to be overestimated. The fact that a cow gives 12 to 15 quarts of milk in a day at a certain time does not prove that she will give 5,000 pounds in a year. The cow must be fed and cared for during the entire twelve months and the profit or loss depends on what she will produce during the entire year.

A well-authenticated example of the value of accurate weighing and testing is given by Alvord as follows:

> A dairyman of wide reputation, president of a State association for years, concluded to adopt the daily milk record, rather because of those who advocated it

than of any conviction of needing it himself. His herd was of his own breeding. He had handled every cow from its birth and he and his sons did the milking. Before beginning this record he made note of the joint opinion of himself and his sons as to the half dozen best cows in the herd and an estimate of their season's milk yield. When the year's record was completed it was found that in order of actual merit the cows actually stood thus: First, the fifth; second, a cow not on his merit list; third, his fourth; fourth, his first; fifth, his sixth; sixth, like the second, and his second and third were still lower on the list. These facts were verified by subsequent records. Still more remarkable, this self-convinced owner proved literally "by the book" that about one-fourth of his cows were being kept at an actual loss, while others barely paid their way.

The record of the herd is a matter of the utmost importance. The highest degree of success can not be attained unless dairymen know the productive capacity of each individual cow. This is necessary as a guide to rational treatment and to insure the greatest profit. The record should include not only the dairy performance, but a concise history and description of each animal. The former requires a daily record of the milk yield of every cow and a fat test of several consecutive milkings, if accurate records are to be secured. Samples for this test may be mixed and this "composite sample" tested, thus obtaining the average. The method is easily learned and practiced. With the percentage of fat taken periodically and a summary of the daily yield of milk, the dairyman has a full record of every cow in his herd. To give still more complete knowledge there should also be a record, at least approximately accurate, showing the cost of the food consumed by each cow, so that the economy of production may be shown.

THE KEEPING OF RECORDS.

Records are far more easily kept than is generally supposed, and the time and cost of keeping them for each cow is so small as to be only a trifle in comparison with their value. The length of time required to weigh and sample the milk will depend much upon the quickness of the individual doing the work. After studying the question the Illinois station found that it required on an average one minute to each cow, or two minutes a day, and that when milk is weighed and tested every seventh week, as is customary with some dairymen, about one hour and thirty-eight minutes is required yearly for each cow tested. With this amount of time expended the farmer can have a reasonably accurate dairy record of every cow in his herd. Considering the time consumed in doing this work and the small expense involved in securing record sheets, scales, and some simple form of the Babcock tester it is surprising that more dairymen do not test their herds. After keeping records the farmer will find that he has made many surprising mistakes in his estimates of the relative value of his cows.

The accompanying cut (fig. 1) represents a record board used at the New Jersey Experiment Station. A record sheet of sufficient size to include the weight of the morning and evening milk of each cow in the herd for a month is attached to this board by means of thumb tacks. Two panes of glass (*a–a*) are set in the frame in front of the record sheet with a space (*b*) of three-fourths of an inch between them for entering the record. The record board is so constructed that the front frame can be lowered each day to enter the new record by adjusting the pin (*c*) which holds it in place. It has the advantage of keeping the record sheet clean and in condition for permanent filing. The glass can be readily cleaned with a moist sponge.

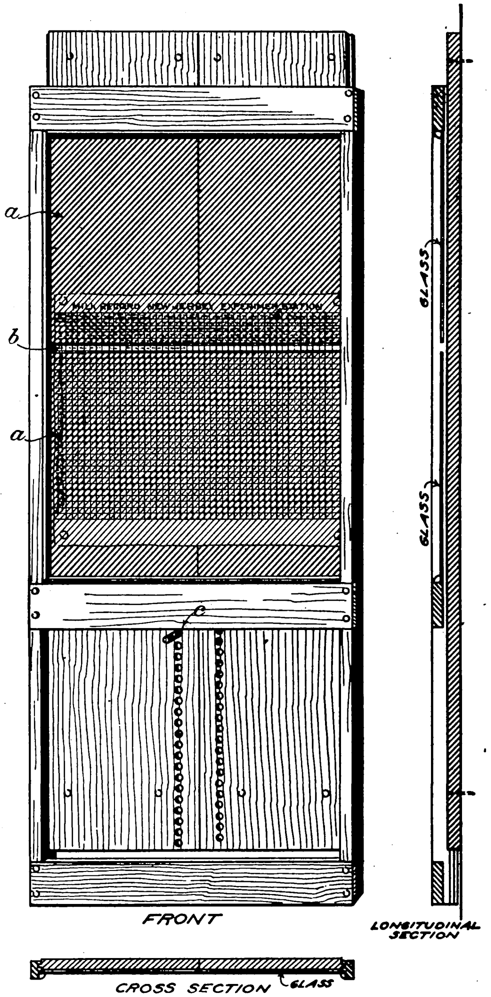


FIG. 1.—Adjustable record board used at the New Jersey Experiment Station.

METHODS OF ESTIMATING RECORDS.

Several methods of estimating yearly records from a few weighings and tests have been proposed. As previously stated, however, the only absolutely accurate way to tell the amount of milk and butter fat produced by a cow is to weigh and test the milk at every milking. Cows vary so much in the amount and quality of their milk from one milking to another, owing to various causes, many of which are uncontrollable, that entirely accurate results can not be secured by weighing and testing the milk secured at a few milkings and using the results as a basis for estimating the total production for a lactation period, or even for a month. Many dairymen, however, do not feel that they can take the time to secure daily records; nor is this necessary if it is simply desired to obtain a reasonably accurate estimate of a cow's performance at the end of the year. An approximate record is sufficient for comparing one cow with another or for determining whether a cow is up to the profit standard.

A number of experiment stations have endeavored to devise some plan whereby a few weighings and tests of the milk of a cow will give a basis to determine, with a fair degree of accuracy, the total yield for a year, or a lactation period.

The Wisconsin station recommends weighing and sampling the milk one day each week during the year. From these different weights and tests the amount of milk and butter fat each cow produces is estimated.

The Illinois station suggests weighing and sampling each cow's milk for fourteen consecutive milkings every seventh week. These weights are added and multiplied by the average percentage of butter fat, the result being the number of pounds of butter fat produced. From these results the amount of milk and butter fat each cow produced the three weeks before and the three weeks following the test is estimated.

In view of the fact that the accuracy of records obtained by weighing and sampling each cow's milk at regular times during the year is often doubted, the Illinois Experiment Station made a test of this method by comparing the amount of milk and butter fat sold from two farms to a creamery with the amount of milk and butter fat as determined by weighing and sampling each cow's milk every seventh week for fourteen consecutive milkings during the year. In one case there was found a difference of 2.2 per cent of butter fat and 0.0015 per cent in milk, making a difference of 4.07 pounds of butter fat and 8.09 pounds of milk per cow; in the other case a difference of 0.038 per cent of fat and 1.98 per cent of milk, or 0.27 pound of butter fat and 120.3 pounds of milk per cow. From these results it is seen that by carefully weighing and sampling each cow's milk every seventh week during her period of lactation records can be secured which are substantially correct.

The number of tests required during a period of lactation is illustrated further by an experiment made at the Illinois station in which the milk of each of six cows was weighed and analyzed daily during the whole period of lactation. The daily records of the six cows give data for comparing their total production of milk and butter fat during one period of lactation, as found from the daily weights and tests of their milk, with the total amount calculated from weights and tests made at intervals of 7, 10, 15, or 30 days. The average of all results obtained with each of the six cows shows that weighing and testing the milk for a cow every seventh day gave 98 per cent of the total milk and butter fat, which, according to her daily record, was the total product. Tests made once in two weeks gave 97.6 per cent of the total milk and 98.5 per cent of the total butter fat, and tests made once a month, or only ten times during the period of lactation, gave

96.4 per cent of the total milk and 97 per cent of the total production of butter fat.

The Vermont Experiment Station made a special study to determine when a cow should be tested in order to give a correct idea of the year's production, if only one or two tests are made during the lactation period. This station recommends, when only two tests of each cow's milk are to be made during the same lactation period, that samples be taken at the intervals given below:

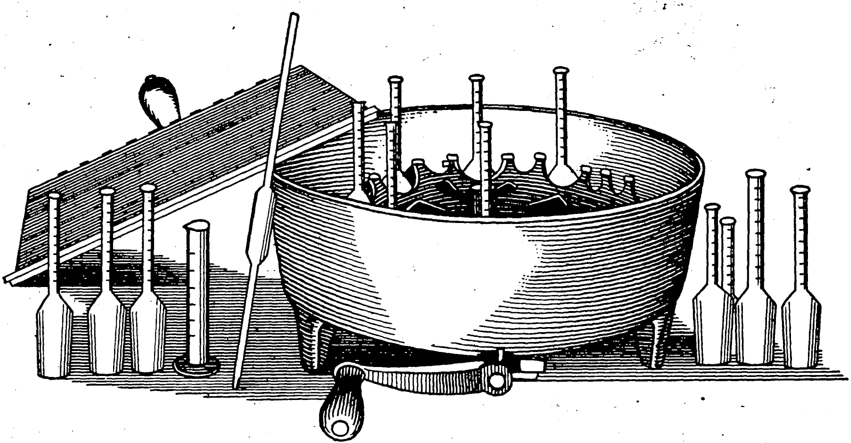


FIG. 2.—Apparatus for Babcock test.

FIRST SAMPLE.

	Weeks after calving.
For spring cows	6
For summer cows	8
For fall cows	8–10

SECOND SAMPLE.

	Months after calvin[illegible]
For spring cows	6½–7½
For summer cows	6–7
For fall cows	5½–7

In case only one test is to be made, approximately correct results may be obtained by testing the milk in the sixth month from calving in case of spring cows; in the third to fifth month in case of cows which calve in the summer or fall. In all cases composite samples of the milk are to be taken for four days in the middle of the month, and the entire month's yield may be obtained with considerable accuracy, barring sickness and drying off, by multiplying the same by 7, 7½, or 7¾, according to the number of days in the month.

The Maryland station, after very exhaustive study of this question, decided that the seventh month in the lactation period would be the best to test a cow when only one test per year is to be made. But where a cow comes near the line of profit or loss a single test can not be depended upon for furnishing an accurate basis for judging her value. When two tests are to be made at different periods, this station found that the third and eighth months would be best; and when three tests are to be made, the third, sixth, and eighth months. To get the average for the year when more than one test is made, the results of the tests are added together and the sum is divided by the number of tests. The amount of milk produced in a year multiplied by the average per cent of butter fat gives the yearly yield of fat. Whether the test is made one, two, or three times a year, it is recommended that composite samples be taken for a week. This minimizes the likelihood of any unnatural condition interfering with the correctness of the test. The precaution is added that the composite samples should not be taken when there is any visible sign of anything unnatural in the condition of the animal.

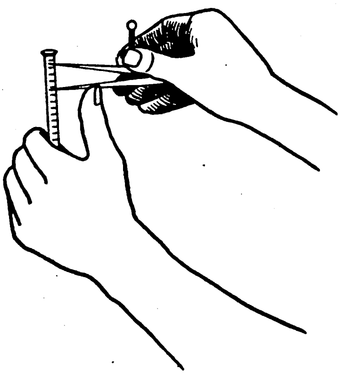


FIG. 3.—Reading the fat column in Babcock test.

RAISING THE STANDARD.

It is interesting to note that the average production of milk and butter per cow in the United States has been increasing slowly yet constantly from one decade to another. The following data shows the census returns from 1850 to 1900:

Average production per cow in the United States.

Year.	Milk.	Butter.	Year.	Milk.	Butter.
	Pounds.	*Pounds.*		*Pounds.*	*Pounds.*
1850	1,436	61	1880	2,004	85
1860	1,505	64	1890	2,709	115
1870	1,772	75	1900	3,646	155

While this increase is encouraging, even the record for the year 1900 is too low to afford the dairyman much profit at the average price for milk and butter. The record indicates further that many dairymen whose herds are below the average in production must be keeping cows at a loss. As a matter of business, then, and a condition essential to best results, every dairyman should study the individuality of his cows, set a standard, and maintain it by promptly disposing of the animals which fail to attain it, unless he has reason to believe that an animal will make a better record in the future. When the standard is reached it should be gradually but persistently raised. This can be done by keeping a sufficient record of the quantity and quality of the milk product, knowing approximately the cost of production, and systematically weeding out the herd. Many dairymen are doing this, and the way it is accomplished is well illustrated in the following:

STATEMENTS FROM DAIRYMEN.

Following are some statements from dairymen showing how they have raised the standard:

An Illinois dairyman writes:

With the introduction of the Babcock test at our creamery I commenced to test my cows and found many surprises. I found the butter made per cow annually to range from 137 to 502 pounds, and the average of the whole herd to be 271 pounds. At this time I had 64 cows, and 21 of them failed to come up to my standard of 200 pounds of butter annually and were sold to the butcher. The second year the standard was put at 210 pounds, and 15 cows were walked out to the butcher. The third year the standard was put at 225 pounds and I had but 6 to sell. The present year I expect to have my mature cows average 300 pounds of butter. There are many dairies in the country that are doing better than this and there is no reason why any dairyman can not do as well. This business requires time and perseverance, the same as any other.

A Pennsylvania dairyman makes the following statement:

In 1882 I became the proprietor of 17 native and grade Shorthorn cows. That year we averaged 125 pounds of butter per cow. That did not pay. The next season we tested every cow with a milk tester. In 1886 we got our average up to 151 pounds of butter and a trifle over $36 cash per cow for butter. In 1889 we bought a purebred Jersey bull calf and two Jersey heifers. During 1894 we milked three 2-year-old heifers and four 3-year-olds and eight over 4 years old. They averaged 220 pounds of butter and $46.65 per head. During the year we purchased another purebred Jersey bull whose dam tested 23 pounds 10½ ounces of butter in seven days. This was done with the expectation of improving our herd. In 1895 we bought a separator. This year our herd made an average of 234½ pounds of butter, worth $47.84. During 1896 our herd consisted of five 3-year-old heifers and 12 cows over 4 years old, and averaged 301 pounds of butter and $52.30 per head. We sold 5 from our herd and in 1897 added five 2-year-old daughters of the Jersey bull. During the first week in August these 5 heifers made a trifle over 7 pounds of butter to the 100 pounds of milk, and the 12 cows of the herd made 5.6 pounds of butter to the 100 pounds of milk. During the year the cows in the herd averaged 5,691 pounds of milk and 343 pounds of butter. Our butter sales averaged $60.28 per cow.

A Wisconsin dairyman testifies as follows:

The average yield of milk for my Holstein-Friesian herd for a term of years past is 10,500 pounds per cow milked, inclusive of all heifers. The yield would have been larger but for the fact that the herd has been kept young by selling the older cows. The average yearly per cent of fat for the herd is 3.45. The milk is weighed daily in bulk, and determination of fat for each cow is made monthly; the individual milkings of each cow being weighed for the first three days of each month, a composite sample taken, and the per cent of fat determined by the Babcock test. The average yield of fat is 365 pounds per cow, equal to 426 pounds of butter. It has long been my aim to get my herd to an average of 400 pounds of butter fat per year, but after passing the 350-pound mark it is more difficult to increase the yield. It is entirely feasible with the best Holstein-Friesians, and one can reach it in time. All my cows are tested for at least one week at flush by the Wisconsin Experiment Station; and the present average for my cows so determined is 17½ pounds butter in seven days, and for the heifers nearly 12 pounds. These yields are computed by the addition of one-sixth to butter fat.

My cattle are pastured in summer without grain, and in winter are fed clover and timothy hay, silage, and cut corn stover for roughness, and bran, middlings, and gluten feed, with what corn the silage contains for grain. I aim at a balanced ration of 1 to 6, or 1 to 6.5. I do not care for a narrower ratio, and do not advise one much wider. The cost of keep is about $50 per year, and the value of the product fully double that sum.

My first Holstein-Friesian bull was bought early in 1883, and my first cows were purchased two years later. At that time the buyer had to depend solely on his own judgment in selecting cattle; but these first cows gave 60 per cent more milk than like cows in my dairy herd, while the first grades gave 1,500 pounds more milk than their dams. Some years later, when the Advanced Register of our association had made it possible, I had that as an aid in the selection of sires, and I thus selected Tietje 2d's Mercedes Prince. The record of his dam was 20 pounds; of his own sister, 24 pounds 15 ounces; of his sire's dam, Mercedes, 24 pounds 6.6 ounces; of his sire's own sister, 28 pounds 13 ounces; and of his sire's grandam, 19 pounds. The next bull was Jeltje S. Netherland Pietertje. His dam had a record of 20½ pounds of butter in one week, while his grandam, Pietertje 2d, held the world's record in milk production, having given 30,318½ pounds milk in one year. As his name shows, this bull also carried the blood of Jeltje S. and Lady Netherland, both of which were great cows.

By the winter of 1897–98 the Holstein-Friesian Association had its new method of having tests supervised by State experiment stations under way, and for the first time in the history of dairy cattle the buyer had absolutely reliable records to aid him in the selection of sires. In giving records under this system I shall be obliged to give them under the so-called 80 per cent rule, which makes them one-fourteenth larger than by the 85.7 per cent rule now used. Under this new system I selected De Kol 2d's Paul De Kol No. 2, whose own sister, May Hartog Pauline De Kol, holds the world's record of 29 pounds 4.3 ounces in her 4-year-old form, and, inclusive of his sister's 4-year-old and dam's 3-year-old record, the official records in his pedigree average 25 pounds 2.7 ounces. Next came Sir Johanna Friend Clothilde, whose six nearest officially tested dams average 24 pounds 3.3 ounces butter in one week and 86.6 pounds milk for the best day's yield. The sire now heading my herd is Sir Ormsby Hengerveld De Kol, whose own sister, Duchess Ormsby 2d's Hengerveld De Kol, holds the world's official record of over 19 pounds butter in one week at just past 2 years old; and the eight official records in his pedigree average 24 pounds 3.9 ounces butter in seven days and an average of over 4 per cent fat. I can thus show calves which, inclusive of records made at all ages, have 20 official records in their pedigrees averaging over 22 pounds butter in seven days.

Other things being equal, like produces like, and the dairyman who would improve his dairy herd must first give it proper food and care, and then breed only to the best sires procurable of that dairy breed which he most favors. Persistence in this will surely bring success.

HOW THE RECORDS FOR THIS WORK WERE COLLECTED.

In securing the records of dairy cows given in the following pages dairy publications, reports of breeders' associations, and the various bulletins and reports of experiment stations have been freely consulted. In addition to this, 600 circulars were sent direct to dairymen asking the following questions:

1. How many cows in your herd?
2. Give approximately their average age.
3. Please state the breed of your cows.
4. What breed of bull is used in your herd?
5. Do you raise your cows or purchase them?
6. At what time in the year do your cows freshen?
7. What rations do you feed in summer?
8. What rations do you feed in winter?
9. Please state (or estimate) the cost of keeping your cows per year.
10. What is the average annual production of milk of your cows?
11. What is the average annual production of butter of your cows?
12. Please state, if possible, the average percentage of butter fat in the milk of your herd.
13. Have any of your cows extraordinary records?

Over 200 replies were received. Of these about one-fourth stated that they did not keep records; others fed whole milk to their calves for several weeks, and for this reason were unable to give complete yearly records; still others kept records of only a few cows in their herds. A large number, however, were able to furnish excellent, well-kept records, as shown in the tabulation which follows. It is believed that a large proportion of those who did not respond had no records to offer.

PART I.—RECORDS OF GRADE COWS.

MILK AND BUTTER-FAT RECORDS OF GRADE AND MIXED HERDS FOR ONE YEAR.

RECORDS PROCURED DIRECT FROM DAIRYMEN.

These records are particularly valuable for the reason that the kind and cost of food, age of cows, and other data are given in connection with them, showing some of the conditions under which they were made.

SUMMARY OF THE RESULTS SECURED.

The accompanying table (pp. 22 to 25) contains a summary of the information secured from dairymen who own grade and mixed herds. The character of the herds, the rations fed, and the milk and butter yields are shown.

DESCRIPTIONS OF A FEW PROFITABLE HERDS.

The following detailed descriptions and records of profitable dairy herds will serve to show the possibilities in production where herds are well managed, and will give information to those seeking dairy knowledge.

A DAIRYMAN'S STORY.

The following, taken from Hoard's Dairyman, is the statement of a dairyman who, by means of careful records and systematic feeding and management of a herd of 71 grade Jerseys, secured a record of 273.4 pounds of butter per cow in ten and two-thirds months.

The herd had 10 acres of pasture and was fed in addition to this green rye, oats, and peas, green oats, green-corn fodder, ensilage, and corn stover, and when at full feed an average of 4 quarts (a little less than 8 pounds) daily of a mixture made up of 300 pounds of bran and 100 pounds cotton-seed meal.

The milk of every cow was weighed each milking, and the record was kept before the milkers in order that daily comparisons of yield could be made. Each cow was fed what fodder she would eat up clean and just what grain was required to keep her at her best if her best paid for the feed consumed. To illustrate, several times I have reduced the total quantity of grain fed by taking a portion of all of the grain away from cows gaining in flesh and dividing a part of the grain so taken among cows that remained thin and which responded to an increase in feed with the result every time of an increased milk return and a decreased cost for grain. The total yield of milk each day was carefully compared with previous days and extreme variations were noted. The cause of such variations was determined and remedied when possible. The Babcock test was frequently used to determine the butter fat in the milk.

Milk and butter-fat records of grade herds and herds of mixed

Name.	State.	Number of cows in herd.	Average age.	Breed.	Breed of bull.	Cows raised.	Cows purchased.	When fresh.
S. M. Wells & Son..	Conn .	42	8	Ayrshires (mainly), Guernseys and Jerseys.	Ayrshire....	Yes.	....	All times ...
Geo. H. Bowker....	Mass..	20	5	Ayrshires (13), and grade Holsteins (7).	.....do......	Yes.	Few ...	.....do......
W. P. Edwards.....	Mass..	6	5	Grade Ayrshires.....	Holstein[a]...	Yes.	Few ...	Spring and fall.
Sam Jones & Son..	Wis...	32	7	Ayrshires (16) and scrubs (6).	Ayrshire....	Half	Half...	.....do......
J. F. Homewood ...	N.C...	4	4	Ayrshires and Jerseys.	.....do......	Yes.	....	Fall ....
C. L. Peck	Pa	24	7	Registered Ayrshires, registered Jerseys, and grades.	.....do......	Yes.	....	Fall and winter.
N. E. McKissick ...	Me ...	150	...	Ayrshires (50) and Ayrshire grades (100).	.....do......	Yes.	Fourth	All times ...
A. S. Worden	Pa	20	8	Devons, Holsteins, and grades.	Devon	Few	Yes....	Fall, winter, and spring.
A. B. Miles.........	N. Y ..	30	2½	Holsteins and grade Holsteins.	Holstein....	Yes.	Few ...	All times ...
H. V. Noyes........	N. Y ..	50	5	.....do..............	.....do......	Yes.	Few ...	....do.......
F. J. Boyson	N. Y ..	40	7	.....do..............	.....do......	Yes.	Few ...	Fall and spring.
W. W. Crittenden..	Mich .	5	3	Holsteins (4), and Jersey (1).	.....do......	......	Yes....	Fall and winter.
Ellerslie Stock Farms.	N. Y..	70	7	Guernsey and Guernsey grades.	Guernsey...	Yes.	Yes....	Spring and fall.
H. W. Comfort.....	Pa	50	6	.....do..............	.....do......	Yes.	Few ...	Fall and spring.
G. M. Phifer.......	N. C ..	55	6	.....do..............	.....do......	Yes.	Few ...	....
L. D. Staples.......	Minn .	7	5	Grade Guernseys	.....do......	Yes.	Few ...	Fall ....
N. I. Bowditch	Mass..	107	6	Grade Guernseys, grade Jerseys, and grade Holsteins.	.....do......	Yes.	Yes....	At all times.
Banning Bros	Mich .	30	8	Grade Guernseys; few grade Shorthorns.	Polled Shorthorn.	Yes.	....	.....do......
A. G. Lewis........	N. Y..	125	3	Guernseys and half-bloods.	Guernsey...	Yes.	Yes....	Fall and spring.
W. H. Russell......	Iowa .	20	5	Guernseys and grades	.....do......	Yes.	....	All times ...
W. R. Holcomb....	Minn .	55	6	Guernseys (37) and Holsteins (18).	Guernsey 1; Holstein 1	Yes.	Yes....	.....do......
H. McK. Twombly.	N.J...	180	5½	Guernseys (35), Guernsey and Jersey grades (145).	Guernsey...	Few	Yes....	.....do......
C. W. Wilcox......	Iowa .	35	7	Guernsey and Guernsey grades.	.....do......	Yes.	Few ...	Fall and winter.
Briarcliff Farms...	N. Y..	496	5	Jerseys, and 10 per cent high-grade Jerseys.	Jerseys; registered.	Yes.	....	All times ...
C. T. Rossiter......	N. H..	20	3	Jerseys and high-grade Jerseys.	.....do......	Yes.	....	.....do......

[a] The words Holstein and Holstein-Friesian used in this bulletin are synonymous.

breeding, for one year, as reported by dairymen in different States.

Summer rations.	Winter rations.	Cost of keeping cow.	Average annual production.		Average fat in milk.
			Milk.	Butter.	
			Pounds.	*Pounds.*	*P.ct.*
Pasture, and various soiling crops.	Hay; cut corn fodder; corn meal; wheat bran.	$60.00	8,000	370	4.0
Pasture; 2 quarts grain (bran, red dog middlings, corn meal, cotton-seed meal.)	Early cut hay; rowen; hungarian grass; 4 quarts grain.	45.00	6,600	308	4.0
Pasture; "stock food;" cotton-seed meal.	Mixed hay; "stock food;" cotton-seed meal.	55.00	6,450	375	5.0
Pasture; silage; corn meal	Silage; hay; bran, and oats.........	28.00	6,310	280	3.8
Pasture...........................	Pea vines; corn fodder; ground oats; corn, and bran.	30.00	....	150	.....
Pasture; oats and peas; hay when pasture is short.	Silage, 30 pounds; hay, 10 pounds; oat and buckwheat straw; bran, corn meal and buckwheat middlings.	35.00	6,000	280	4.0
Pasture; 4 quarts bran and shorts daily.	Ensilage; bran and shorts; roots; hay; oil meal.	....	5,000	264	4.52
Pasture; grain, 2 quarts (bran, one-half; wheat middlings, one-half).	Silage; clover and timothy hay; ground oats; corn meal, wheat and buckwheat middlings, and bran.	30.00	6,223	305	4.2
Pasture; bran and gluten........	Bran and gluten..................	35.00	6,000	210	3.05
Pasture; cut clover; oats and peas; cornstalks.	Silage, 40 pounds; hay 5 to 10 pounds; beets; grain 5 to 15 pounds.	45.00	7,701	270	3.02
Pasture; sowed corn; brewers' grains.	Silage; hay; brewers' grain; grain (oil meal and corn meal; wheat mill feed, distillers' grains).	27.35	7,000	270	3–3.6
Pasture...........................	Hay, corn stover; corn and oats and bran (one-third of each).	....	6,175	258	3.58
Pasture; bran, oats, and corn.....	Silage; hay; bran, oats, gluten......	50.00	6,200	350	4.9
Pasture; bran (small quantity)...	Silage 35 pounds; corn stover; grain 6 pounds (bran, gluten, and cotton-seed meal).	40.00	6,000	315	4.5
Cotton-seed meal and hulls; pea vine; cane; cut corn.	Silage; pea-vine hay; cotton-seed meal and hulls.	23.00	6,278	....	.....
Pasture...........................	Corn stover; fodder corn; clover hay; upland hay; corn; oats, and bran.	35.00	5,300	265	4.3
Poor pasture; 20 pounds ensilage; 6 pounds mixed feed; 5 pounds hay; 3 pounds gluten feed.	Silage 35 pounds; hay 10 pounds; cotton-seed meal 1¼ pounds; corn meal 3¼ pounds; bran 4 pounds.	55.00	7,665	364	4.2
Pasture; supplemented by green corn fodder.	Corn stalks; clover hay; straw; corn and oats.	38.00	5,805	303	4.5
Pasture; hay; green alfalfa; silage; cotton-seed meal, barley, bran, gluten, oil meal.	Silage; hay; cotton-seed meal; barley; gluten; bran; oil meal.	78.00	6,800	367	4.63
Pasture; silage; bran and gluten when pasture is short.	Silage; hay; bran and gluten feed..	28.00	6,000	362	5.2
Silage; oats and peas; bran, oil meal.	Silage; alfalfa hay; bran and barley.	43.00	5,800	315	4.66
Soiling crops—oats and peas, crimson clover, corn, millet, red clover; grain.	Silage 25 pounds; hay; grain 7 pounds (bran 800, gluten 1,000, middlings 200, linseed meal 100, corn meal 100, cotton-seed meal 200).	61.00	6,707	360	4.6
Pasture (blue grass); small amount bran in dry season.	Silage; hay; sorghum forage; bran and shorts (equal parts).	30.00	4,700	274	5.0
Hay and soiling crops; 2 quarts grain (bran 300, beet pulp 300, corn meal 150).	Silage; hay; 4 to 6 quarts grain (bran 500, beet pulp 500, corn meal 300, oil meal 200, gluten 200).	....	5,197	349	5.6
Pasture; supplemented with ensilage, green feed; bran and light feed of cotton-seed meal.	Silage, clover hay: bran; cotton-seed meal; gluten.	50.00	5,925	380	5.5

Milk and butter-fat records of grade herds and herds of mixed breeding

Name.	State.	Number of cows in herd.	Average age.	Breed.	Breed of bull.	Cows raised.	Cows purchased.	When fresh.
R. S. & H. W. Davis.	Vt	46	4¼	Grade Jerseys	Jerseys; registered.	Yes.		Spring, fall, winter.
I. B. Witmer	Ohio	8	7	Jersey and Jersey grades.	....do	Yes.	Few	All times
E. C. Birge	Conn	18	7	Jersey and Holstein grades.	Guernsey or Jersey.	Half	Half	....do
Wm. Schulmerich	Oreg	27	5	Jerseys and grade Jerseys.	Jersey, registered.	Yes.		Fall
J. L. Hoyle	Iowa	11	5	Grade Jerseys	....do	Yes.		All times
L. J. Kendall	Mass	50	6	Jersey, Guernsey, and grades.	Jersey	Yes.	Yes	....do
John Lynch	Cal	50	6	Shorthorns and Shorthorn grades.	Shorthorn	Yes.		August, May

for one year, as reported by dairymen in different States—Continued.

Summer rations.	Winter rations.	Cost of keeping cow.	Average annual production.		Average fat in milk.
			Milk.	Butter.	
			Pounds.	*Pounds.*	*P.ct.*
4 quarts grain (cotton-seed meal 200, bran 200, corn meal 100) to best cows.	Cotton-seed meal; bran, corn meal and gluten feed—2 to 4 quarts.	$42.50	4,800	270	5.0
Pasture; bran, corn meal.........	Silage; stover; hay; bran; gluten feed; oil meal.	35.00	6,175	360	5.0
Pasture; soiling crops; 2 quarts grain.	Silage 40 pounds; protein grain 7 to 8 pounds; hay.	....	5,000	245	4.2
Clover pasture; soiling crops—tares, corn, pumpkins; ground oats.	Clover hay; turnips and pumpkins; ground oats; bran; oil meal.	40.00	6,730	315	4.05
Grain and bran....................	Silage; bran..........................	35.00	4,738	305	5.5
Pasture; forage; grain	Silage 35 pounds; hay; oat fodder or millet 15 pounds; grain 10 pounds.	75.00	6,450	....	.....
Pasture............................	Hay; ground barley one-half, bran one-half—3 quarts per cow.	30.00	6,340	....	.....

The stimulus of such records to even the least intelligent milker to maintain an even flow of milk is surprising. The records are also of much value to the feeder in assisting him to feed each animal intelligently and thus secure the greatest returns for the least outlay.

To give emphasis to the value of systematic knowledge of what each cow is doing and can be made to do, it may be stated that these cows were purchased out of ordinary farm herds, one, two, three, and four in a place; and the most claimed for any herd from which purchases were made was, in three instances, that the herd had averaged 250 pounds of butter per cow the previous year. Yet a herd of 71 cows was picked up here and there from ordinary farmers which, in response to systematic watching, feeding, and milking by ordinary farm hands pushed and stimulated to best efforts by resultant figures staring them in the face twice daily, yielded in ten and two-thirds months an average of 273.4 pounds of butter per cow.

A JERSEY HERD ON A NEW YORK FARM.

The following is the statement of the manager showing method of breeding, feeding, and management of a Jersey herd of 500 cows:

The herd is made up of pure Jerseys and Jersey grades. We milk nearly 500 cows all the time, and raise our own stock. After having carefully noted the results, we find that under our method heifers with their first calf give 50 per cent more milk, and that the calves themselves are at least one-third larger, since they are left on their dams thirty days after birth. It has always been our policy never to breed a heifer until she is a mature cow at least 2 years old. The results of this method are shown in the following statement, this being a test of 25 heifers raised under this method, giving the results of milk for the year running from 1901 into 1902.

Yield of milk from heifers.

Name.	Age at first calf.	Milk yield.	Age at second calf.	Milk yield.	Age at third calf.	Milk yield.
	Yrs. mos.	*Pounds.*	*Yrs. mos.*	*Pounds.*	*Yrs. mos.*	*Pounds.*
Sadie of Briarcliff	2 10	6,028	....	....	....	....
Canton Ida	3 0	5,524	....	....	....	....
Ida Brockelmann	3 0	6,288	....	....	....	....
Rustic Relic	3 0	6,938	4 0	7,907	....	....
Janet Penman	3 1	7,249	....	....	....	....
Gertrude of Briarcliff	3 2	4,229	....	....	....	....
Vasten of Briarcliff	2 10	6,492	3 10	6,163	4 10	7,190
Franzos of Oakland	3 1	3,595	3 11	6,376	....	....
Anoka of Oakland	2 8	5,940	3 7	7,718	....	....
Snowdrop	2 9	6,186	3 11	5,666	....	....
Alliance	2 9	5,265	3 9	5,512	....	....
Janette	3 0	8,769	4 5	7,571	....	....
Hertica	2 10	6,152	....	....	....	....
Maglona	2 8	4,604	3 7	6,273	4 6	6,110
Bertha	3 0	5,863	3 11	6,618	5 1	8,282
Madam Vey	2 11	7,393	3 11	8,861	....	....
Arma	3 1	6,151	....	....	....	....
Lady Christie	3 0	5,396	4 0	7,302	....	....
La Burgoyne	3 0	5,601	4 2	7,084	....	....
Dauntless	2 9	6,818	3 10	5,078	....	....
Lilly of the Valley	2 11	6,046	3 0	7,513	....	....
Miss Ida	3 1	7,802	....	....	....	....
Melinda	2 9	6,415	3 9	6,368	....	....
Georgiana	2 11	6,265	3 10	9,035	....	....
Bonnie Blue Lassie	2 10	6,854	3 9	8,160	....	....

For the year ending December 31 last the herd under this method produced 2,392,097 pounds of milk. This was chiefly sold through our own stores in the shape of milk and cream; 61,454 pounds of butter was made from the milk not sold in bottles.

The method of feeding is strictly dry feed, with pasture and green corn in summer. Feed is mixed in the following proportions: Bran, 50 per cent; crushed oats, 25 per cent, and corn meal, 25 per cent—all of the best quality on the market. We have tested nearly all the known feeds on the market, and nothing can compare with the above for results, for if a cow does not produce 6,000 pounds of milk per annum containing 5 per cent of butter fat, or 5,000 pounds of milk per annum containing 6 per cent of butter fat, then the cow is taken out of the herd and butchered or sold. Our policy has been, if the cow will not pay her board, put her out of the herd. By this process of selection remarkable results have been secured and maintained.

The average of the grain ration above given which is consumed by each cow is about 7 pounds per day, ranging as low as 2 pounds per day while on good pasturage and as high as 12 pounds per day in winter. Each cow is also fed from 1½ to 2 pounds of oil meal daily and all the hay the cow will eat, this hay consisting of timothy and clover. The amount of hay a cow will eat runs from 17 to 20 pounds daily, according to the size of the cow. The record of each cow is watched daily, and she is fed according to her producing qualities in order not to waste the feed, which, owing to its quality, is quite expensive.

Each man in the barns milks, cleans, and grooms daily from 16 to 18 cows, and this takes up about all of his time. Our business is conducted under the inspection of the milk commission of the county medical society of New York City, which watches the bacteriological side of our product with weekly regularity. The board of health regulations in New York permit as high as 3,000,000 bacteria to the cubic centimeter of milk, while the milk commission of the medical society limits this to 30,000 per cubic centimeter. Our milk is chilled almost immediately after being milked; that is, we might say it is chilled within two minutes of the time it leaves the cow and reduced to a temperature of 45°, which positively prohibits the propagation of bacteria. By this method of keeping the milk chilled, the cows clean, and all utensils sterilized, we are able to deliver a product in New York City containing sometimes as low as 200 to 400 bacteria per cubic centimeter, and this process is kept up the year round.

DAIRY OF THE NORTHERN MICHIGAN ASYLUM FOR THE INSANE.

Mr. C. L. Whitney, steward of the above institution, reports as follows:

Starting the herd.—The institution at Traverse City, Mich., was completed in 1885, when an indifferent herd of milch cows was selected to supply the inmates with milk. They were selected without regard to breed or breeding of any particular quality. They were simply cattle, supposed to give milk. Soon after a purebred Holstein-Friesian bull was purchased for the improvement of the herd. The heifer calves were raised, and in due time became cows in the herd. In 1888 a second purebred Holstein-Friesian bull and a purebred cow of the same breed were purchased and added to the herd. Calves of a better grade were raised, and soon a purebred calf appeared, and later a purebred bull calf, which in time became the head of the improving growing herd.

The growth of the institution was such that the dairy was not sufficient to meet the daily demands of the inmates for milk, and an amount was daily purchased from the farmers in the vicinity.

Improving the herd.—In the spring of 1894 the board of trustees resolved to increase the dairy, and made a purchase of 15 purebred Holstein-Friesian cows and a young bull of the same herd from a noted herd in the eastern part of the State. This was a fine addition to the herd and to the milk supply. Many of the old grades were weeded out, and better care was taken of the balance. A year later, in 1895, 10 head more of purebred Holstein-Friesian cows were purchased from one of the best herds in the State of Iowa, after many herds were visited in that and other

States. This purchase gave the asylum a herd of 26 Holstein-Friesian cows, all registered, and there were as many Holstein grade cows in the herd that had been selected from those grown upon the farm. These grades were three-fourths to fifteen-sixteenths Holstein blood, and many of them good milkers. With the 52 head now in the herd the supply of milk was ample to meet the needs of the institution, and no milk has since been purchased by the asylum.

Keeping milk records.—With the beginning of the year 1895 the milking was systematically done and the product of each cow weighed and a record made and kept of the same on blank forms procured for the purpose that show the yield of each cow at each milking. This system of weights and records has been kept up since—nearly nine years. The daily records fill the blank for the month, and these blanks are compiled into a report for the steward's office where they are filed, and at the end of the year are compiled into a yearly report showing a record of each cow for the year, with time milked, amount given, averages per month, per day, and per cow, etc. These reports for the eight years are now on file in our office, and the amount of milk given by any cow for any time can readily be seen. By the aid of these records a system of selection of the best and rejection of the poorer cows has been carried on; first, the poorer grades, and then the poorer of the entire herd were selected for fattening for beef.

Only records were kept for milk, as no butter was made in the institution, that being purchased of the creameries of the State, from 900 to 1,000 pounds being used per week. The quality of the milk is carefully observed, and now a Babcock test is used and the cows are being tested for butter fat. The amount of butter fat varies from 2.75 per cent to 4.4 per cent; a few individual cows have run even higher. The average is not far from 3.3 per cent of butter fat, judging from the tests made. It is our purpose to make frequent tests and to reject all cows from the herd that do not come up to the required test, thus continually raising the amount of fat the milk contains.

Milking.—The milking is done regularly by the same men, beginning at 4.30 in the morning and at 4 p. m. each day, the same men always milking the same cows and in the same order without variation. As soon as a cow is milked the milk is taken to the milk room in an isolated building made for the purpose, and there weighed upon a set of scales adjusted to the pail to show just how much milk is in the pail. A record is at once made of the amount to the credit of the cow. The milk is then strained into a large can through a large tin strainer over which are two thicknesses of cheese cloth. When the can has enough milk to make it float upright, it is set into a large water tank of running cold water from an artesian well where the cans remain until the milking is done, when the milk is taken to the cold storage milk room at the house. Nothing is allowed in the milk room but the milk and the utensils used there in handling the milk, and everything not stationary is moved out daily to wash and clean them and the room.

Feeding and handling.—The feeding is all done by one man, the herdsman in charge, who does it at the same time each day. He recognizes the individuality of each animal and feeds as the animal needs, respecting size, age, appetite, period of lactation, and everything that varies the need of the animal fed. The cows are regularly fed before milking in the morning. After milking they are turned into the yard to water at the tank filled from the artesian well that never freezes and never varies in temperature. While the cattle are drinking the stables are cleaned and put into the best condition; then the cows are returned and fed grain or roots, or both. The herd is then well groomed and left until after noon, when they are again watered and the stables prepared for the milking at night, the feed being put into mangers for them the same as in the morning. The time the cows are allowed to remain outside the barn depends upon the temperature and weather. In cold or stormy weather the time is very short. In mild weather and when the sun shines a longer time is taken. In the summer the herd is taken to a near-by pasture to drink and enjoy the shade during the forenoon, and on very warm nights they are turned into good-sized paddocks to rest for the night, returning to the barn for feed and milking in the morning. In fly time the herd is kept much of the day in the barn, where shaded and screened windows and repellents keep the pests out. The barns are at all times well ventilated, free from odor and bad air.

Feed.—We feed largely clover hay, corn fodder, and roots, with bran and ground corn and oats in winter; and rye, clover, and corn, cut green, are fed with bran and grain in the summer. We use roots, such as carrots, mangolds, beets, and parsnips, instead of ensilage in the winter; the hay and corn fodder are run through the feed cutter before feeding and at times steamed before feeding, the ground grain ration being added.

Results accomplished.—From the records kept we have been enabled to select out the poorer cows and fatten them for beef, supplying their places with the young cows raised from the better performers bred to the very best sires we have been able to get. The herd has been changing and will change. The grades have nearly all disappeared; the few left are as good milkers as the purebreds. The following table will show the work of the herd for eight years, given by the year:

Summary of records by years.

	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.
Number of purebred Holstein-Friesians milked 8 months and over in the year	22	26	27	33	31	28	48	55
Number of grade Holsteins milked 8 months and over in the year	21	28	23	24	18	11	5	3
Total number of cows milked 8 months and over in the year	43	54	50	57	49	39	53	58
Number of 2-year-old heifers milked in the year	2	2	3	5	3	2	8	4
Average number of days each cow milked in the year	300	307	309	315	300	300	288	300
Average yield (pounds) of milk per cow in the year	8,794	8,065	7,070	9,447	10,795	11,356	10,631	10,480
Average milk (pounds) per cow per day for the time milked in the year	30.6	26.22	23.14	29.97	35.31	37.89	36.35	34.87

It will be seen by the table that as the purebreds increased and the grades lessened, the amount of milk and the average per cow per day increased, until in 1900, when all the poorer cows were disposed of and the number of the herd was reduced to the lowest limit, and those the best, in anticipation of a number of young heifers being taken into the herd. This made the rate high in 1900. With the additions the rate was lower in 1901, and with more additions, still lower in 1902. The rate for 1903 will be higher, as there are fewer young heifers, and those that came in in 1901-2 have become more mature. The flow of milk for 1897 was affected by the dry, hot summer and fall we had, spoiling not only the pastures but the silage crops with which we expected to feed our herd.

The following forms show the daily and monthly record sheets used at this institution:

NORTHERN MICHIGAN ASYLUM.

Daily milk record for the month of ———, 19—.

No. cow.	Dropped calf.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total daily average.
......	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
......	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
......	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....

NORTHERN MICHIGAN ASYLUM.

Monthly milk record for the year ending ———, 190—.

No. cow.	Born.	Dropped calf.	First month.	Second month.	Third month.	Fourth month.	Fifth month.	Sixth month.	Seventh month.	Eighth month.	Ninth month.	Tenth month.	Eleventh month.	Twelfth month.	Total milk.	Days milked.	Days dry.	Amount per day.
......	......	......	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	......
......	......	......	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	......
......	......	......	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	......

HERD OF 68 COWS OWNED BY A MICHIGAN FARMER.

Following is a statement by the owner of the methods of feeding and management:

I commenced weighing the milk April 14, 1890, and have kept it up. I have each cow's milk weighed on Monday and Thursday of each week. In the year 1899 I weighed the milk of 12 cows at every milking, and had a composite test made each week. In one case it was found that the yield, as shown by the twice-a-week record, varied from the actual amount given by 253 pounds in the year; but with the 11 other cows the variation did not exceed 40 pounds in the year; so am convinced that two weighings a week will give a practically accurate record.

1890.—The herd comprised 7 registered Holsteins, 4 registered Jerseys, and 31 grades (mostly Holstein). The average number of pounds given by each cow was 7,324. Two 2-year-old heifers were counted as 1 cow.

1891.—There were 18 registered Holstein-Friesians and 31 grades; average yearly milk yield, 7,428 pounds.

1892.—Registered Holstein-Friesians, 20, and grades, 35; average per cow, 8,125 pounds of milk.

1893.—Registered Holstein-Friesians, 23, and grades, 38; average per cow, 7,853 pounds.

1894.—Registered Holstein-Friesians, 43, and grades, 10; average yield, 8,273 pounds.

1895.—Registered Holstein-Friesians, 44, and grades, 6; average yield, 9,171 pounds.

1896.—Registered Holstein-Friesians, 49; average yield, 8,742 pounds.

1897.—Registered Holstein-Friesians, 50; average yield, 8,742 pounds.

1898.—Registered Holstein-Friesians, 39; average yield, 8,848 pounds. Did not feed any grain for three and one-half months while cows were at pasture.

1899.—Registered Holstein-Friesians, 49; average yield, 8,632 pounds. The effect of no grain while at pasture in 1898 is still visible.

1900.—Registered Holsteins, 57; average yield, 10,128 pounds of milk.

1901.—Registered Holsteins, 60; average yield, 9,948 pounds; 18 two-year-old heifers.

1902.—Registered Holsteins, 68; average yield, 9,853 pounds.

All the cows except the heifers have been tested either by the Lansing or Madison Experiment Station. The average test of the herd has run from 3.5 per cent to 3.6 per cent. I have two families that test nearly 4 per cent. Am trying to bring the whole herd up to the 4-per-cent mark. I pasture the herd nights and feed in the barn daytime from June 1 to October 1. I use about 7 pounds of bran and 1 to 2 pounds of oil meal for their grain ration. The winter feed is 35 to 55 pounds of corn ensilage, 7 to 10 pounds hay ("clover" as a rule), 5 to 10 pounds of bran, and 1 to 2 pounds of the oil meal.

The cows are milked three times a day while in flush, which runs on an average four to five months. I aim to have cows go dry fifty to seventy days, but have several that do not go dry at all; one has not been dry in six years. She gave 9.1 pounds of milk July 9, 1903, and on July 10, 1903, dropped a heifer calf; July 13 she gave 35.3 pounds; 16th, 40.2 pounds; 20th, 42 pounds; 23d, 48.7 pounds; 27th, 52.3 pounds; 30th, 54.9 pounds; August 3, 60.7 pounds. She will probably reach 72 to 75 pounds this month. She gives 12,000 to 12,500 pounds a year.

Records of Herds Owned by Creamery Patrons.

The following records were secured by a representative of Hoard's Dairyman detailed to make investigations concerning the patrons of creameries in various States. The farms were visited, the patrons interviewed, and the books of the creamery consulted. Inquiries were made as to the number of cows kept during the year (all cows were counted and heifers were counted as cows after they came in); the kind of cows and how bred; the cost of keeping the cows; the average ration; how the cows were stabled; the returns from creamery per cow; the average age of cows; the average number of pounds of milk per cow; the average number of pounds of butter per cow; the average price of butter for the year (the price to be net, after taking out payment for making); the average price of milk per 100 pounds per year, and the patron's idea as to the value of skim milk.

The records are given in concise form in the following tables, and should be of interest to dairymen in that they show how good rations and well-selected cows affect the profits.

RECORDS OF WISCONSIN CREAMERY PATRONS.

The first investigation was made among the patrons of creameries in Jefferson County, Wis., and the results appear in the following table:

Records of 100 herds owned by creamery patrons in Jefferson County, Wis.

[Reported in Hoard's Dairyman, vol. 31.]

Patron's number.	Number of cows.	Breed of cows.	Cost of feed per cow.	Returns from creamery per cow.	Yield of milk per cow.	Yield of butter per cow.	Average price of butter per lb.	Average price of milk per 100 lbs.	Value of butter for $1 in feed.
					Pounds.	*Pounds.*	*Cents.*	*Cents.*	
1	22	Grade Jerseys	$25.00	$47.10	4,369	243	19.4	108	$1.88
2	15	Holsteins	35.00	42.25	6,070	227	18.6	69.5	1.21
3	22	Grade Jerseys, grade Guernseys, and grade Holsteins	25.00	35.99	4,578	195.4	18.4	78.6	1.44
4	20	Grade Jerseys	25.00	34.66	3,886	185	18.8	89.2	1.34
5	15	Grade Jerseys and scrubs	30.00	29.00	3,371	152	19	86	.97
6	13	Natives	27.00	28.53	3,216	149.8	19	88.7	1.06
7	10	Grade Guernseys and grade Holsteins	33.00	50.88	5,203	225.6	19.9	97.8	1.54
8	16	Guernseys and grade Guernseys	35.00	48.50	4,935	249.5	19.4	98	1.39
9	20	Grade Shorthorns	35.00	53.85	6,621	278.2	19.4	81.3	1.54
10	15	Grade Jerseys	25.00	39.21	4,064	212	18.5	96.5	1.57
11	15	Holsteins	34.00	55.00	7,599	285.2	19.3	81.1	1.62
12	7	Grade Jerseys	35.00	48.28	5,237	255.5	19	92.2	1.38
13	38	Dairy grades	28.00	32.49	3,794	174	18.6	86	1.16
14	16	Grade Guernseys	30.00	55.86	5,596	288.3	19.4	100	1.86
15	24	Grade Jerseys, grade Guernseys, and grade Holsteins	30.00	49.46	5,367	250.7	19.7	92.1	1.65
16	16	Grade Shorthorns and grade Holsteins	27.00	29.58	3,500	159.4	18.6	84.5	1.09

Records of 100 herds owned by creamery patrons in Jefferson County, Wis.—Continued.

Patron's number.	Number of cows.	Breed of cows.	Cost of feed per cow.	Returns from creamery per cow.	Yield of milk per cow.	Yield of butter per cow.	Average price of butter per lb.	Average price of milk per 100 lbs.	Value of butter for $1 in feed.
					Pounds.	*Pounds.*	*Cents.*	*Cents.*	
17	40	Grades of dairy breeds	$25.00	$30.38	3,594	165.8	18.3	84.5	$1.21
18	24	Jerseys and grade Jerseys	30.00	52.07	5,092	280.9	18.5	102	1.73
19	22	Grade Jerseys and grade Guernseys	35.00	47.15	5,270	257.7	18.3	88.6	1.34
20	13	Grade Jerseys	35.00	51.22	5,188	273.5	18.7	98.7	1.46
21	14	Grade Jerseys and grade Holsteins	30.00	37.21	4,211	200	18.6	88.4	1.24
22	14	Grade Jerseys	28.00	52.01	5,416	280.5	18.5	96	1.86
23	12	Grade Shorthorns and grade Guernseys	30.00	42.59	5,030	232.7	18.3	84.5	1.42
24	10	Grade Holsteins	30.00	48.30	5,160	249.2	19.4	93.6	1.61
25	15	Grades of dairy breeds	28.00	50.77	5,277	269.6	18.8	96.2	1.81
26	20	Grade Guernseys and grade Shorthorns	28.00	48.86	5,489	257.7	19	89	1.75
27	18	Natives	30.00	46.08	4,975	241	19.1	92.6	1.54
28	28	Grade Guernseys	34.00	56.09	6,819	301.6	18.6	82.4	1.65
29	34	Grade Holsteins	38.00	52.59	6,242	280.5	18.7	84.2	1.50
30	29	.....do	32.00	57.03	6,379	292.5	19.5	89.4	1.79
31	20	Natives	36.00	43.08	5,140	223.6	19.2	83.8	1.20
32	35	Holsteins and grade Holsteins	35.00	58.06	7,639	311	18.7	76	1.66
33	20	Grade Holsteins	35.00	43.43	5,353	227.5	19.1	81.1	1.24
34	34	.....do	35.00	55.10	6,433	293.9	18.8	85.6	1.58
35	12	Grade Brown Swiss	35.00	47.43	5,236	257.8	18.4	90.5	1.35
36	18	Grade Holsteins	35.00	48.35	6,054	261.3	18.5	79.8	1.38
37	22	.....do	34.00	57.27	6,944	291.3	19.7	82.5	1.66
38	5	Grade Holsteins and grade Jerseys	25.00	41.69	5,244	227	18.3	79.3	1.67
39	8	Grades of dairy breeds	27.00	46.29	5,299	250	18.5	87.2	1.71
40	22	Grade Guernseys and natives.	30.00	44.22	4,837	238.1	18.6	87.3	1.47
41	20	Grade Shorthorns, dairy type.	28.00	47.14	5,525	244	19.3	85.3	1.68
42	6	Grade Jerseys	25.00	32.20	3,569	182.1	17.7	90.2	1.29
43	8	Grade Holsteins and grade Jerseys	29.00	48.00	5,649	259.2	18.5	85	1.65
44	12	Natives	30.00	32.12	4,053	179.7	17.9	79.2	1.07
45	15	Grade Jerseys	30.00	61.41	6,501	322	19.1	94.5	2.07
46	20	Grade Shorthorns and grade Holsteins	30.00	50.11	5,653	265.2	18.9	88.6	1.67
47	12	Grade Shorthorns and general purpose	30.00	38.84	4,681	198	19.6	84.3	1.29
48	18	Grade Holsteins and grade Shorthorns	25.00	36.34	4,661	203.4	17.9	78	1.34
49	8	Natives	33.50	40.01	5,247	213.3	18.8	76	1.21
50	10	Grade Holsteins and grade Guernseys	24.00	30.46	3,565	157.2	19.3	85.4	1.24
51	16	.....do	22.00	30.97	3,344	162	19.1	92	1.41
52	8	Grade Jerseys	29.00	49.62	5,454	255.4	19.4	91	1.71
53	14	Guernseys and grade Guernseys	30.00	45.81	4,815	264.4	17.3	95.2	1.53
54	12	Grade Holsteins and natives	25.00	42.37	5,055	228	19	83.8	1.69
55	30	Grade Jerseys	25.00	38.61	4,139	198.8	19.4	93.3	1.55
56	13	.....do	27.00	43.68	4,344	225.5	19.4	100	1.75
57	12	Grade Jerseys and natives	25.00	39.76	4,414	219.2	18.2	90.3	1.59
58	14	Grade Guernseys and natives.	24.00	37.27	3,975	202	18.5	93.8	1.55
59	18	Mostly natives or scrubs	27.00	35.75	4,034	186	19.2	88.6	1.32
60	11	Grade Guernseys	31.00	44.69	4,810	232.8	19.2	92.3	1.44
61	18	Grades of Jerseys, Guernseys, and Holsteins	23.00	30.74	3,276	163.1	19.8	93.8	1.34
62	16	Mostly dairy Shorthorn grades	30.00	43.36	5,394	238	18.2	80.3	1.44
63	23	Natives and a little Holstein blood	31.00	41.15	5,026	223	18.5	81.9	1.35
64	12	Scrubs and a little Jersey blood	30.00	28.81	3,583	159	18.1	80.4	.96
65	7	Grade Jerseys	30.00	38.22	3,728	197.1	19.4	101	1.27
66	20	.....do	27.00	31.43	3,584	173.9	18.1	87.7	1.16
67	15	.....do	27.00	47.55	4,773	245.4	19.4	99.6	1.76
68	20	Grade Jerseys and grade Guernseys	26.00	44.87	4,749	235.4	19	94.5	1.73
69	21	Grade Jerseys	35.00	47.92	4,231	224.4	21.2	113.2	1.37
70	16	Grade Jerseys and grade Guernseys	27.50	50.47	4,884	258.7	19.5	103.3	1.87
71	17	Good common cows	25.00	44.15	4,966	236.1	18.7	88.9	1.73
72	14	Grade Jerseys	30.00	54.91	5,350	290.9	18.9	102.6	1.83
73	20	Grade Jerseys and grade Durhams	30.00	40.72	4,328	231.5	19.1	94.1	1.36
74	7	Grade Jerseys	28.00	40.92	4,370	211.4	19.4	96.6	1.46
75	20	Grade Jerseys, Holsteins, and common cows	25.00	42.29	4,759	220.6	19.2	88.6	1.69
76	12	Grade Jerseys	27.00	40.07	3,952	208.5	19.9	101.4	1.48

Records of 100 herds owned by creamery patrons in Jefferson County, Wis.—Continued.

Patron's number.	Number of cows.	Breed of cows.	Cost of feed per cow.	Returns from creamery per cow.	Yield of milk per cow.	Yield of butter per cow.	Average price of butter per lb.	Average price of milk per 100 lbs.	Value of butter for $1 in feed.
					Pounds.	*Pounds.*	*Cents.*	*Cents.*	
77	20	Grades of different dairy breeds	$28.00	$48.46	5,354	254	19.1	90.5	$1.73
78	20	Grade Jerseys	33.00	46.28	4,435	241.6	19.2	104.3	1.40
79	16	.....do	26.00	54.16	4,920	286	18.9	110.1	2.08
80	20	Grade Guernseys	28.00	57.24	5,777	301	19	99.1	2.04
81	18	Grades of different breeds and some common cows	27.00	34.39	4,178	181.6	18.9	82.3	1.27
82	14	Grade Holsteins	31.00	56.76	7,030	300.3	18.9	80.7	1.80
83	6	.....do	27.00	47.71	5,440	241.9	19.7	87.9	1.77
84	95	Holsteins and grade Holsteins.	34.00	38.49	5,773	209.4	18.3	66.7	1.13
85	18	Common cows	28.00	39.22	5,413	214.5	18.2	72.5	1.40
86	21	Grades of different dairy breeds	26.00	45.73	5,866	239	19.1	77.9	1.76
87	46	Grade Jerseys	33.00	38.57	4,306	215.5	17.9	89.6	1.17
88	19	Grade Jerseys, some Guernseys, some full bloods	27.00	45.49	4,778	244	18.6	95.2	1.69
89	12	Guernseys mostly	29.00	45.42	4,737	222.8	20.3	95.9	1.57
90	18	Grade Holsteins and mixed cows	28.00	47.19	5,504	235	20.1	85.7	1.69
91	4	Grade Guernseys	27.00	49.45	5,753	261.8	18.5	86	1.83
92	8	Mixed breeds	32.00	37.55	4,036	208.4	18	93	1.17
93	20	Grade Jerseys, some beefy	29.00	36.76	4,316	202.6	18.1	85.1	1.27
94	20	Grade Jerseys	29.00	58.83	6,552	331.3	18	89.8	2.02
95	8	Grade Holsteins	26.00	41.55	5,590	229.3	18.1	74.3	1.60
96	12	Grade Guernseys and grade Shorthorns	30.00	42.11	4,764	219.7	19.2	88.4	1.40
97	20	Grade Jerseys and grade Holsteins	25.00	36.61	4,534	193.2	18.9	80.7	1.46
98	25	Shorthorns	30.00	34.56	4,393	187	18.5	78.7	1.15
99	14	Holsteins and grade Holsteins.	31.00	36.85	5,279	209	17.6	69.8	1.19
100	20	Grade Holsteins	30.00	44.82	6,124	237.7	18.8	73.2	1.49

The reason for the differences in yield and profit was found to be mainly in the kind of cows kept and the kind of food on which they were fed. Of course there are other minor factors that contribute to success in dairying, but these two were the most prominent here.

The kind of cows.—The investigations included 100 creamery patrons owning nearly 2,000 cows. There were but few full-blooded herds included in the number, but when the blood of one particular breed predominated in a herd it was classed as that breed. Where there was a mixture of dairy breeds and no single breed predominated they were classed "mixed dairy." The following table, arranged according to breeds and giving the average products and profits of each, is quoted from Hoard's Dairyman:

Average results for herds of 100 creamery patrons in Jefferson County, Wis.

Breed.	Number of herds.	Number of cows.	Yield of milk per cow.	Yield of butter per cow.	Returns from creamery for $1 in feed.	Net profit per cow.
			Pounds.	*Pounds.*		
Jerseys	28	466	4,798	244.7	$1.62	$17.58
Holsteins	19	450	6,081	255.0	1.54	16.99
Guernseys	11	185	5,141	252.5	1.60	17.92
Mixed dairy	19	346	4,455	208.5	1.44	12.14
Natives	11	164	4,541	203.6	1.31	8.77
Dairy Shorthorns	6	113	5,436	240.8	1.48	14.77
General-purpose Shorthorns	4	54	4,219	194.4	1.22	7.08
Brown Swiss grade on Jersey foundation.	1	12	5,236	257.8	1.35	12.43

It is noticeable that the "mixed dairy herds" produced less than any of the herds in which some particular breed predominated. This is believed to be due to the fact that if a man has no liking for any special breed he is not as careful in the selection, breeding, and care of his cows as one who makes a choice.

The kind of food.—Some of these dairymen claimed that the most profitable method was to use only such feeds as were raised on their farms and not to pay out good money for concentrated feeds. Others were of the opinion that it paid a good profit to buy feeds so as to make a balanced ration where the proper feeding stuffs were not raised on the farm. To test the matter the 100 patrons were divided into two classes. One class bought feed such as cotton-seed meal, oil meal, gluten feed, brewers' grains, malt sprouts, and wheat bran. The other class all fed corn and oats, which were the only grain feed their cows had. In all cases the cows were charged with the market value of all the feed they consumed—that is, the purchased feed at the price paid for it and the feed raised on the farm at the cash price at which it could have been sold.

Forty-six patrons bought feed and received for butter from the creamery $1.57 for each dollar's worth of feed the cows ate. The other 54 patrons bought no feed and received $1.45 for each dollar's worth of feed consumed. Thus those who purchased feeds made 12 per cent more on the value of all the food their cows ate than did the others. And it must be borne in mind that many of those who did buy feed and are counted in this class purchased only a little, in some cases but 1 or 2 tons of bran during the winter, not enough to have much effect in balancing a ration.

It is true that some who had cows of the best dairy type and gave them the best of care and attention realized good returns from their cows without buying feeds. The fact, however, remains that the patrons who secured the best records and received the greatest profits fed a fairly well-balanced ration, and in order to do that they had to buy feeds rich in protein. It would be an ideal condition if the farmer could raise all the protein food necessary to make his cows do their best. This is occasionally accomplished by raising such crops as clover, field peas, cowpeas, and soy beans. Until, however, crops are raised containing more protein than those ordinarily grown by the farmer it will be necessary to buy protein foods if the best results are to be secured.

Some of the patrons made the mistake of having all their cows "come fresh" in the spring, thus producing the most milk when the price was low. After passing through the season of heat and flies the cows were nearly dry and the best attempts had but little effect in bringing back the flow of milk during the winter.

Many did not read dairy papers or make any effort to study out the principles of the dairy business, and as a rule these secured the lowest profit.

It was noted that good dairymen, as well as poor ones, seemed to be in clusters. Here is shown the influence of a few progressive dairymen who for years studied their business and became intelligent in regard to it. Their neighbors followed their example. In the other case the example of those who did not read and study dairy methods was followed and they were all ignorant together, and as the result of their ignorance they received very little if any profit from their dairy cows.

INVESTIGATIONS AMONG CREAMERY PATRONS IN NEW YORK.

The following tables show the data secured as a result of investigations among the creamery patrons in three counties of New York State:

Records of herds owned by 100 patrons of Bainbridge creamery, New York.

[Reported in Hoard's Dairyman.]

Patron's number.	Number of cows.	Breed of cows.	Cost of feed per cow.	Returns from creamery per cow.	Yield of milk per cow.	Returns for each 100 pounds of milk.	Returns for each $1 worth of food fed.
					Pounds.		
1	8	Natives mostly	$42.70	$49.44	4,628	$1.07	$1.16
2	10	Natives and mixed breeds	33.80	48.36	4,655	1.04	1.43
3	10	.....do	35.50	27.43	2,756	.99	.77
4	7	.....do	36.28	31.00	3,198	.97	.85
5	17	Natives and grade Holsteins	34.12	37.40	3,630	1.03	1.09
6	7	Natives mostly	31.75	29.65	3,224	.92	.93
7	13	Grade Durhams	38.60	23.86	2,266	1.02	.62
8	8	Natives and mixed breeds	42.00	70.33	6,393	1.10	1.67
9	16	.....do	35.40	37.29	3,856	.96	1.05
10	8	.....do	31.25	22.97	2,428	.95	.73
11	13	Natives	39.25	38.86	3,754	1.03	.99
12	8	Mixed breeds	38.88	46.97	4,463	1.07	1.21
13	9	Natives and grade Jerseys	51.10	66.80	5,572	1.20	1.30
14	12	Natives and mixed breeds	36.50	39.35	3,916	1.00	1.08
15	7	Grade Jerseys	40.00	43.13	4,394	.98	1.07
16	8	Holsteins and grades	39.00	46.55	4,974	.91	1.19
17	9	Grade Jerseys and Holsteins	42.00	49.75	5,197	.96	1.18
18	19	Natives and mixed breeds	38.58	39.45	4,303	.92	1.02
19	20	Natives	39.75	42.18	4,350	.97	1.06
20	20	Natives and mixed breeds	42.25	35.57	3,605	.99	.81
21	25	Natives and grade Holsteins	36.90	42.30	4,325	.98	1.15
22	7	Grade Jerseys and natives	37.10	28.91	3,067	.94	.78
23	13	Natives	33.23	37.21	3,675	1.01	1.12
24	30	Grades Holsteins and Jerseys	43.50	53.32	5,298	1.06	1.23
25	16	Natives mostly	31.25	39.64	4,211	.94	1.26
26	6	Natives	37.80	48.15	4,500	1.07	1.27
27	24	Mixed breeds	42.38	45.38	4,508	1.01	1.07
28	10	Natives and mixed breeds	35.45	52.66	5,276	1.00	1.48
29	11	Grade Holsteins	35.10	50.07	5,266	.95	1.43
30	10	Natives and mixed breeds	38.50	46.63	4,745	.98	1.21
31	17	Natives and grade Holsteins	37.00	36.04	3,004	1.04	.83
32	15	Natives	30.00	13.88	1,566	.92	.46
33	13	.....do	41.50	31.73	3,155	1.00	.76
34	14	Natives and grade Holsteins and Jerseys	31.43	32.94	3,542	.93	1.05
35	6	Natives and mixed breeds	44.65	35.66	3,874	.92	.80
36	15	Natives and grade Holsteins	38.20	45.60	4,466	1.06	1.19
37	20	Natives	37.90	18.60	2,021	.92	.49
38	19	Grade Jerseys	34.37	31.10	3,075	1.01	.90
39	28	Holsteins and Jerseys	42.00	54.93	4,957	1.11	1.31
40	30	Natives	46.20	57.32	5,355	1.07	1.24
41	14	Natives and grade Jerseys and Holsteins	38.50	40.23	3,948	1.02	1.05

Records of herds owned by 100 patrons of Bainbridge creamery, New York—Continued.

Patron's number.	Number of cows.	Breed of cows.	Cost of feed per cow.	Returns from creamery per cow.	Yield of milk per cow.	Returns for each 100 pounds of milk.	Returns for each $1 worth of food fed.
					Pounds.		
42	6	Natives and mixed breeds	$41.50	$64.50	6,303	$1.02	$1.56
43	27	Jersey and Holstein grades	40.48	38.90	3,885	1.00	.96
44	5	Natives	40.20	45.13	4,438	1.02	1.12
45	50	Mixed breeds	36.10	32.54	3,187	1.02	.90
46	24	do	36.50	46.56	4,680	1.00	1.28
47	20	Natives and mixed breeds	39.50	30.03	3,165	.95	.76
48	27	Natives and grade Jerseys and Holsteins	36.55	54.47	5,181	1.05	1.49
49	13	Holstein grades	39.00	29.93	3,063	.98	.76
50	10	Natives	36.40	39.71	4,168	.95	1.08
51	30	Mixed breeds	38.50	53.63	5,520	.97	1.39
52	8	Natives	42.20	48.13	4,813	.97	1.14
53	15	do	31.60	29.38	3,228	.91	.93
54	15	Natives and mixed breeds	42.18	45.40	4,729	.96	1.08
55	5	Natives	32.00	25.53	2,806	.91	.80
56	21	Natives and grade Holsteins	39.00	35.00	3,511	1.00	.90
57	12	Mixed breeds	40.00	41.57	4,014	1.03	1.03
58	7	Holstein and Jersey grades	35.00	40.85	4,800	.95	1.17
59	7	Natives	37.00	47.84	4,771	1.00	1.29
60	9	Mixed breeds	37.35	37.11	3,893	.99	.99
61	15	do	38.35	20.72	2,157	.96	.54
62	32	Natives and grades	43.00	35.91	4,029	.89	.84
63	10	Grade Jerseys	40.60	23.50	2,423	.97	.58
64	8	Natives and mixed breeds	40.20	26.50	2,812	.94	.66
65	19	Mixed breeds	39.50	39.83	3,966	1.00	1.01
66	20	Natives	32.00	28.64	3,198	.91	.89
67	21	Mixed breeds	40.00	30.06	3,209	.93	.77
68	10	Natives and Jersey grades	32.70	35.25	3,750	.94	1.08
69	10	Mixed breeds	37.00	38.52	4,042	.95	1.04
70	30	do	37.00	24.81	2,409	1.03	.67
71	15	Natives and mixed breeds	38.72	41.68	4,041	1.03	1.08
72	20	do	40.60	46.44	4,551	1.02	1.14
73	21	Natives and grade Jerseys	37.00	25.16	2,780	.91	.68
74	13	Natives	41.00	41.18	3,877	1.09	1.00
75	15	Natives and mixed breeds	37.60	41.68	4,041	1.03	1.11
76	26	Natives mostly	40.50	33.60	3,140	1.07	.80
77	13	Natives and mixed breeds	40.00	38.00	3,518	1.08	.95
78	14	Natives	35.00	29.22	2,865	1.02	.83
79	35	Natives and mixed breeds	40.00	38.06	3,696	1.03	.95
80	14	do	39.60	39.57	3,967	1.00	1.00
81	20	do	38.60	34.31	3,534	.97	.89
82	21	do	43.25	47.65	4,814	.99	1.10
83	13	High-grade Jerseys	33.00	32.47	3,184	1.02	.98
84	12	Natives mostly	38.75	37.45	3,941	.95	.96
85	10	Natives and grade Holsteins	39.00	40.81	4,021	1.02	1.05
86	15	Natives and mixed breeds	38.00	36.10	3,954	.91	.95
87	12	Natives	36.33	38.60	3,748	1.03	1.03
88	6	do	35.00	21.15	2,165	.97	.60
89	6	Natives and grade Holsteins	35.66	35.42	3,472	1.02	.99
90	18	Natives and grade Holsteins and Jerseys	41.50	50.35	4,795	1.05	1.21
91	19	Grade Jerseys and mixed breeds	39.40	41.18	4,078	1.01	1.04
92	17	Grade Holsteins	38.65	31.08	3,048	1.02	.80
93	18	Natives and mixed breeds	38.55	29.17	3,078	.99	.86
94	8	Mixed breeds	36.52	41.11	4,237	.97	1.12
95	10	Natives and mixed breeds	41.30	48.60	4,760	1.02	1.17
96	7	Natives and grade Ayrshires	38.70	40.97	4,052	1.01	1.06
97	7	Natives	34.00	35.25	3,672	.96	1.04
98	20	do	37.00	37.12	3,783	.98	1.00
99	40	do	33.45	36.69	3,628	1.01	1.10
100	20	Natives and grade Holsteins	40.70	51.10	4,782	1.05	1.20

It was pointed out in the results of this investigation that patrons received an average profit of 65 cents per cow. The cost of keeping a cow averaged a little over $35 per head. Other things being equal, the silo men got the greatest profit from the expenditure for feed. The grade of cow kept, the skill shown in selecting feeds, and the care and intelligent attention to the needs of the cow were large factors in determining the results. Many of the farmers were far from the goal of true success. Better and cheaper rations were needed as well as better cows to turn the ration into milk. It was shown that the silo and the alfalfa crop would assist materially in reducing the cost of feeds and that dairy cows producing 5,000 pounds of milk per year were within the reach of every painstaking dairyman.

Records of 100 dairies in Delaware and Otsego counties, N. Y.

[Reported by Hoard's Dairyman.]

Patron's number.	Number of cows.	Kind of cows.	Cost of feed per cow.	Returns from creamery per cow.	Yield of milk per cow.	Yield of butter per cow.	Average price butter per pound.	Average price milk per 100 pounds	Value of butter for $1 in feed.
					Pounds	*Pounds*	*Cents.*	*Cents.*	
1	24	Grade Jerseys and natives....	$38.00	$29.20	3,047	147.0	20	96	$0.99
2	30	Grade Jerseys mostly..........	45.00	34.00	3,309	173.0	20	103	.75
3	20	Grade Jerseys..................	32.00	32.96	3,557	179.0	18	93	1.03
4	60	Grade Jerseys and Guernseys.	28.00	38.31	3,484	196.0	20	101	1.37
5	32	Grade Jerseys and natives....	40.00	38.15	3,701	195.0	20	103	.95
6	40	Native breeds mostly..........	35.00	43.83	4,286	230.0	19	102	1.25
7	26	Grade Jerseys and Guernseys.	34.00	30.12	3,074	153.0	20	98	.89
8	40	High-grade Jerseys............	37.00	43.00	4,283	232.0	19	106	1.16
9	26	Grade Jerseys and Durhams (grade Jersey sire)...........	38.00	37.47	3,957	195.0	19	94	.98
10	18	Grade Jerseys and natives....	31.00	31.48	3,302	163.0	19	95	1.01
11	30	High-grade Jerseys............	35.00	40.13	3,952	206.0	19	102	1.15
12	14	Grade Jerseys..................	31.50	44.50	4,671	222.0	19	95	1.41
13	19	Grade Jerseys and natives....	31.00	27.29	3,107	142.0	19	88	.88
14	30	.....do........................	32.00	26.89	2,834	144.0	19	95	.84
15	8	.....do........................	37.00	32.43	3,281	169.4	19	98	.88
16	16	.....do........................	33.50	40.50	4,220	208.5	19	96	1.21
17	12	Grade Jerseys and natives (grade Jersey sire)...........	26.00	31.89	3,189	150.0	21	87	1.23
18	22	Grade Jerseys (purebred Jersey bull).....................	30.00	24.00	2,426	121.0	20	99	.78
19	16	High-grade Jerseys mostly....	26.00	36.87	3,956	199.0	18	93	1.42
20	12	Natives........................	25.00	37.42	4,106	186.0	20	91	1.50
21	8	Grade Jerseys and natives....	29.00	31.00	3,156	166.0	19	96	1.09
22	10	Natives........................	30.00	17.73	1,954	92.0	19	90	.59
23	16	Grade Jerseys..................	33.00	37.59	3,370	183.0	21	111	1.14
24	31	Natives mostly................	31.00	26.20	3,027	139.0	19	88	.85
25	26	Purebred and grade Jerseys..	30.00	46.00	3,861	230.0	20	108	1.53
26	28	Natives and some grade Jerseys..........................	31.00	35.00	3,500	175.0	20	100	1.13
27	11	Grade Jerseys and purebred Jersey bull.................	27.50	30.61	3,696	179.0	17⅒	83	1.11
28	10	Jerseys and Guernsey grades.	25.50	24.08	2,951	134.4	18	100	.94
29	9	Grade Jerseys..................	25.20	22.92	2,739	132.0	17⅓	83	.91
30	16	Grade Guernseys...............	27.80	36.29	4,240	208.0	17⅓	84	1.35
31	12	Grade Jerseys..................	34.00	23.37	2,834	133.8	17⅓	82	.68
32	10	Grade Jerseys and natives....	29.80	31.20	4,026	185.7	17⅓	77	1.03
33	18	Grade Holsteins and Jerseys.	32.80	36.78	4,214	210.0	17⅛	87	1.12
34	14	A mixed lot....................	26.50	29.94	5,695	167.0	17½	81	1.13
35	5	Grade Jerseys..................	26.00	30.69	3,503	175.0	17½	83	1.18
36	12	Mixed breeds...................	28.40	31.20	4,026	185.7	17½	77	1.10
37	13	Purebred Jerseys and grade Durhams.......................	35.00	29.96	3,697	186.0	16	81	.85
38	27	Grade Jerseys..................	34.00	37.11	4,135	230.0	16⅛	90	1.09
39	9	A mixed lot, some Devons....	31.80	25.58	3,296	154.0	16⅔	78	.80
40	10	Holsteins and Jersey grades..	41.40	30.22	3,918	199.0	15⅛	77	.73
41	11	Mixed breeds...................	26.00	25.09	3,675	169.0	15	68	.96
42	6	Natives........................	25.20	19.97	2,762	134.0	15	72	.79
43	13	Grade Jerseys and Shorthorns.	30.00	21.44	2,899	143.0	15	74	.73
44	4	Grade Jerseys..................	29.00	21.87	2,562	130.0	16	85	.75
45	10	Jersey grades mostly..........	34.00	47.58	5,031	275.0	17⅓	94	1.45
46	9	Grade and purebred Jerseys..	33.60	44.18	4,715	244.0	18	93	1.31
47	18	Mostly mixed breeds..........	31.40	29.25	3,655	177.0	16½	80	.93
48	11	Natives and mixed breeds ...	35.60	21.13	2,365	118.0	18	89	.59
49	20	Grade Jerseys..................	45.00	32.50	3,314	160.0	20¼	98	.69
50	25	Devons.........................	32.20	27.93	3,203	154.0	18	87	.83
51	16	Jersey and Holstein grades ..	34.40	44.07	4,848	245.0	18	91	1.28
52	36	.....do........................	27.00	24.77	3,009	142.0	17½	82	.92
53	6	Grades and purebred Jerseys.	32.60	49.42	5,281	281.0	17½	93	1.54
54	28	Mostly natives................	30.60	26.64	3,038	153.0	17½	88	.83
55	17	Mixed breeds..................	29.50	26.34	3,052	149.0	17⅜	86	.89
56	12	Natives........................	26.00	23.65	2,909	135.0	17½	81	.91
57	14	Grade Durhams................	30.60	35.85	4,224	205.0	17½	85	1.17
58	12	Jerseys and mixed breeds....	35.00	53.76	5,505	289.0	18⅔	97	1.59

Records of 100 dairies in Delaware and Otsego counties, N. Y.—Continued.

Patron's number.	Number of cows.	Kind of cows.	Cost of feed per cow.	Returns from creamery per cow.	Yield of milk per cow.	Yield of butter per cow.	Average price butter per pound.	Average price milk per 100 pounds	Value of butter for $1 in feed.
					Pounds.	*Pounds.*	*Cents.*	*Cents.*	
59	18	Grade Jerseys and Durhams	$30.00	$32.73	3,865	190.0	17⅕	85	$1.03
60	15	Mixed breeds	28.00	29.21	3,379	166.0	17½	86	1.04
61	14	High-grade Jerseys	44.00	61.00	6,255	338.5	18	97⅝	1.39
62	5	Grade Durhams, Holsteins, and Guernseys	36.00	30.62	3,611	175.0	17½	90	.85
63	13	Grade Jerseys	29.00	36.38	3,924	202.0	18	92	1.25
64	7	Mixed breeds	29.00	28.96	3,301	161.0	18	87	.99
65	13	Grade Jerseys	30.00	41.14	3,893	212.0	19⅖	105	1.37
66	12	Grade Holsteins	31.00	30.35	3,396	162.0	18⅔	89	.98
67	18	Grade Jerseys and purebred Jersey bull	43.00	37.36	3,622	212.0	17⅔	103	.87
68	10	Grade Jerseys	30.60	33.91	3,372	199.0	17	100	1.18
69	12	Grade and purebred Jerseys	37.00	48.65	4,737	268.0	18	102	1.31
70	19	.....do	30.00	32.46	3,348	187.0	17⅓	97	1.08
71	11	Grade Jerseys	26.50	26.92	2,905	155.0	17	92	1.02
72	8	Mixed breeds	27.40	26.94	2,599	158.0	17	103	.90
73	36	High-grade Jerseys	30.00	47.50	4,727	272.0	17½	100	1.58
74	26	Grade Jerseys	32.00	33.20	3,449	190.0	17½	96	1.04
75	16	Mixed breeds	30.00	39.36	4,194	224.0	17⅔	94	1.31
76	8	Grade Jerseys and mixed breeds	29.00	19.54	1,932	109.0	18	101	.67
77	10	Grade Jerseys	28.20	33.44	3,628	197.0	17	89	1.18
78	19	Grade Jerseys and mixed breeds	29.40	25.60	2,737	147.0	17½	93	.87
79	16	Grade Jerseys	29.20	36.09	3,761	207.0	17½	98	1.23
80	26	Grade Jerseys and mixed breeds	33.40	35.16	3,866	203.0	17⅓	91	1.05
81	20	Grade Jerseys	37.00	61.63	6,288	355.0	17⅓	98	1.66
82	12	Jerseys and mixed breeds	31.00	51.10	5,164	287.0	18	91	1.65
83	12	Grade Jerseys	32.60	42.28	4,091	242.0	17½	103	1.29
84	17	High-grade Jerseys	38.00	60.42	6,042	355.0	17	102	1.61
85	25	Grade Jerseys	33.00	23.24	2,152	132.0	17½	108	.70
86	22	.....do	37.00	40.59	3,450	228.0	17¾	104	1.09
87	15	Grade Jerseys and mixed breeds	30.00	17.81	2,011	102.0	17	88	.50
88	12	Grade Jerseys and Holsteins	32.00	24.06	2,406	138.0	17⅛	94	.75
89	18	Grade Jerseys and mixed breeds	31.00	23.71	2,453	137.0	17⅓	96	.75
90	....	Grade Jerseys	28.60	26.45	2,764	151.0	17	96	.92
91	....	.....do	28.20	24.42	2,698	141.0	17	91	.87
92	16	.....do	30.00	22.04	2,503	127.0	17	88	.73
93	6	.....do	32.50	27.15	3,150	159.0	17	86	.84
94	10	.....do	32.00	52.08	4,963	295.0	17⅛	105	1.64
95	15	.....do	33.00	45.29	4,269	253.0	17⅛	106	1.37
96	30	Grade Jerseys and mixed breeds	32.00	37.24	3,645	199.0	18	102	1.16
97	8	Grade Jerseys	35.00	32.48	3,429	186.0	17	95	.93
98	18	.....do	45.00	33.61	3,445	189.0	17⅛	98	.75
99	20	Mixed breeds	34.00	40.65	4,556	229.0	17⅛	89	1.19
100	18	Grade Jerseys and mixed breeds	32.50	26.49	2,745	150.0	17⅛	97	.81

This investigation revealed the fact that a fair ration for a cow in that section of the country cost $35 per year; that the average net returns for butter were not over 17 cents per pound, and the average price for milk was not over 90 cents per 100 pounds. At these prices the cow that did not make 200 pounds of butter per year, or nearly 4,000 pounds of milk, did not pay for her keeping. This fact alone should be the means of working a revolution in the methods practiced, and the patrons who made dairying profitable should encourage many to keep better cows and feed better rations. Intelligence and character were shown to be the basis of success. Dairymen who practiced the primitive methods of thirty, forty, and fifty years ago and failed to adapt their methods to the demands of a progressive age lost money.

It was pointed out that the reason they did not progress was because they did not avail themselves of the education in dairying and agriculture so cheaply offered to them by the dairy and agricultural papers, farmers' institutes, farmers' reading courses, experiment stations, agricultural colleges, etc.

RESULTS OF INVESTIGATION AMONG CREAMERY PATRONS IN PENNSYLVANIA.

The table following shows the results of an investigation carried on among the creamery patrons of Susquehanna County, Pa.:

Records of 50 dairies in Susquehanna County, Pa.

[Reported by Hoard's Dairyman.]

Patron's number.	Number of cows.	Kind of cows.	Cost of keeping per cow.	Returns per cow.	Yield of milk per cow.	Average price of milk per 100 pounds.	Amount received for each dollar spent for feed.	Does he read any dairy literature?
					Pounds.			
1	12	Grade Holsteins and Jerseys..	$39.00	$57.98	5,974	$1.17	$1.48	Yes.
2	30	Grade Durhams and Holsteins.	39.00	22.27	2,094	1.06	.57	No.
3	25	Grade Holsteins...............	35.00	54.94	4,847	1.13	1.57	Yes.
4	15	Mixed breeds................	27.00	51.56	4,414	1.17	1.84	Yes.
5	15	Grade Holsteins and Jerseys..	35.00	27.79	2,597	1.07	.79	No.
6	12	Grade Holsteins...............	29.00	36.32	3,614	1.01	1.25	No.
7	15	Grade Durhams and Jerseys..	28.00	30.15	2,928	1.03	1.08	No.
8	12	Grade Holsteins and Jerseys..	37.00	36.43	3,422	1.04	.98	Yes.
9	16	Mixed breeds, grade Jerseys..	43.00	72.26	6,396	1.13	1.68	Yes.
10	23	Mixed lot.....................	31.00	27.27	2,744	.99	.88	No.
11	8	Grade Durhams and Holsteins.	32.00	47.23	4,184	1.12	1.48	No.
12	20	Grade Holsteins and Jerseys..	31.00	31.60	3,082	1.02	1.02	No.
13	17	Mixed breeds................	33.00	45.74	4,114	1.11	1.39	Yes.
14	10	.....do.....................	31.00	43.02	4,072	1.06	1.39	No.
15	8	Grade Holsteins...............	36.00	45.28	4,088	1.11	1.26	Yes.
16	18	Mixed lot.....................	39.50	37.91	3,553	1.07	.96	No.
17	10	Mixed breeds................	33.00	33.74	3,378	.99	1.02	No.
18	10	Grade Holsteins...............	37.00	60.55	5,359	1.13	1.64	Yes.
19	7	Grade Jerseys and Dutch Belted.....................	35.00	40.36	3,727	1.01	1.15	Yes.
20	10	Grade and purebred Holsteins and Jerseys................	37.00	57.78	3,507	1.09	1.54	Yes.
21	6	Grade Jerseys and Holsteins..	31.00	36.03	3,103	1.11	1.16	No.
22	17	Mixed lots, some Dutch Belted	33.00	42.09	3,691	1.11	1.27	No.
23	8	Mixed breeds................	31.00	30.10	2,880	1.04	.97	No.
24	6	.....do.....................	31.20	15.75	1,648	.96	.50	No.
25	15	.....do.....................	34.00	34.65	3,380	1.03	1.02	No.
26	11	.....do.....................	31.00	33.55	3,094	1.09	1.08	Yes.
27	15	.....do.....................	38.00	52.45	4,635	1.13	1.38	Yes.
28	20	Grade Holsteins...............	41.00	73.74	6,661	1.11	1.79	Yes.
29	9	.....do.....................	37.00	60.56	4,192	1.14	1.64	Yes.
30	10	.....do.....................	29.00	28.15	2,573	1.09	.97	Yes.
31	5	.....do.....................	32.00	48.41	4,512	1.07	1.51	Yes.
32	5	Mixed breeds................	30.00	25.75	2,509	1.03	.86	No.
33	5	.....do.....................	29.50	38.61	3,660	1.05	1.31	No.
34	10	Grade Jerseys................	30.00	34.26	3,205	1.06	1.14	Yes.
35	15	Grade Holsteins...............	32.00	52.03	4,673	1.11	1.63	Yes.
36	14	Grade Holsteins and Jerseys..	31.00	39.72	4,063	.98	1.28	Yes.
37	12	Mixed breeds................	31.00	52.85	4,944	1.07	1.70	Yes.
38	20	.....do.....................	33.00	30.28	2,814	1.08	.92	Yes.
39	12	.....do.....................	32.00	39.92	3,972	1.00	1.24	Yes.
40	8	Mixed lot.....................	28.00	41.58	4,207	1.01	1.48	No.
41	12	Mixed breeds................	30.00	30.34	2,791	1.08	1.01	Yes.
42	8	.....do.....................	29.00	37.09	3,666	1.01	1.28	No.
43	9	.....do.....................	32.00	39.22	3,807	1.03	1.23	Yes.
44	8	.....do.....................	34.00	41.79	5,477	.76	1.23	Yes.
45	18	Grade and purebred Guernseys.....................	34.00	48.85	4,798	1.02	1.44	Yes.
46	20	Mixed breeds................	35.00	52.54	5,127	1.02	1.55	Yes.
47	30	Grade Holsteins...............	32.00	56.09	5,166	1.08	1.75	
48	8	Mixed breeds................	30.00	41.01	3,995	1.04	1.39	No.
49	14	.....do.....................	34.00	25.65	2,748	.94	.75	No.
50	20	.....do.....................	30.00	40.18	3,864	1.04	1.34	Yes.

The representative of Hoard's Dairyman who made these investigations stated that only about one-half of the dairymen visited read any kind of agricultural papers or seemed to be availing themselves of the means of education offered them. As a consequence of this lack of knowledge losses and leaks were found which robbed the dairyman of all the profits in his business, and the saddest part of it was they were often unconscious of them. One great waste was in not having cows that responded to good care and feed. In some instances a very good ration was fed to a herd with little or no profit, while other herds fed almost the same ration returned a good profit. A lack of knowledge of the principles of breeding was also reported. Less than 10 per cent were keeping purebred sires descended from dams having good dairy records.

Another waste was in the feeding of unbalanced rations. Sometimes the carbohydrates were far in excess of what the cow could utilize in milk production and the excess was wasted. For instance, some were feeding as high as 3 bushels of ensilage per cow daily. Too often the cornstalks were fed to the cattle dry and uncut, only a part being eaten. Little attempt was made to grow any protein soiling crop, such as alfalfa or oats and peas, to supplement the pasture. About 75 per cent of the barns were reported not sufficiently warm. This also caused a waste of food nutrients. Not more than 10 per cent of the stables were provided with any system of ventilation other than windows, holes in the floor over the stable, and hay chutes. In addition to pure air, sunshine was also lacking in most cases.

Too often the manure which should have enriched the soil and nourished the crops was wasted. Not more than 15 to 20 per cent of the stables were sufficiently tight to allow the liquid manure to be saved by the use of absorbents.

One encouraging feature was that more than one-third of the dairymen had silos, and others were preparing to build them. They were finding that they could not profitably make winter milk without a cheap, succulent food. A few dairymen were progressive and prosperous and making good profits, while some of their immediate neighbors were not. One patron received $70 per cow from his whole dairy and $1.79 for each dollar invested in feed. Not far from him was another patron who received only $15 per cow and 50 cents for each dollar invested in feed. The value of this investigation to dairymen is in fully appreciating what made the success of the one and the failure of the other.

INVESTIGATION OF DAIRIES IN IOWA.

Returns from 100 Iowa dairies are presented in the following table:

Returns from 100 dairy herds in Iowa.

[Reported by Hoard's Dairyman.]

Herd No.	Number of cows,	Kind of cows.	Estimated cost of keeping.	Yield of milk per cow.	Yield of butter per cow.	Value of butter per cow.	Value of butter from $1 in feed.
				Pounds.	*Pounds.*		
1	10	Half natives and half dairy grades..	$20.00	4,141	178	$33.82	$1.43
2	7	2 registered dairy, balance natives and dairy grades	22.00	4,646	209	39.71	1.69
3	5	Dual-purpose	22.00	2,878	126	23.94	1.09
4	5	.....do	23.00	3,848	165	31.35	1.36
5	4	.....do	23.00	3,816	144	27.36	1.19
6	9	High-grade Shorthorns	33.00	2,946	131	24.89	.78
7	2	.....do	33.00	2,975	175	32.25	.98
8	5	Dual-purpose	30.00	4,195	184	34.96	1.16
9	7	High-grade Shorthorns	32.00	2,999	135	25.65	.80
10	5	One dairy type, balance dual-purpose	28.00	3,736	168	31.52	1.14
11	4	Dual-purpose	20.00	3,108	137	26.03	1.30
12	5	Natives with some dairy blood	25.00	4,770	205	38.95	1.56
13	5	Natives	17.00	1,851	81	15.39	.91
14	14	Dual-purpose	22.00	2,333	104	19.76	.89
15	14	High-grade Shorthorns	23.00	2,278	100	19.00	.83
16	3	One dairy-bred, balance dual-purpose	30.00	3,777	168	31.92	1.06
17	3	One full-blood dairy, balance high-grade dairy	28.00	3,929	244	46.36	1.66
18	11	All full-blood dairy	29.00	5,036	325	61.75	2.12
19	7	Dual-purpose	20.00	2,547	112	21.28	1.06
20	6	.....do	23.00	4,023	169	32.11	1.39
21	9	.....do	25.00	2,977	128	24.32	.97
22	8	.....do	24.50	3,002	158	29.52	1.20
23	7	Grade Holsteins and Shorthorns	24.00	3,908	139	26.41	1.10
24	5	Natives	25.00	3,963	166	31.54	1.26
25	3	.....do	23.00	3,677	154	29.31	1.26
26	4	.....do	22.00	3,087	126	23.94	1.09
27	7	High-grade Shorthorns	25.80	2,980	125	23.75	.95
28	3	High-grade dairy	22.00	4,397	193	36.67	1.67
29	8	Dual-purpose	24.00	3,206	140	26.60	1.11
30	6	.....do	24.00	3,660	165	31.35	1.31
31	8	Red Polled	25.00	2,526	114	21.66	.90
32	8	Dual-purpose	22.00	2,499	120	22.80	1.04
33	8	.....do	22.00	2,541	114	21.66	.98
34	13	.....do	23.00	2,932	132	25.08	1.09
35	4	.....do	22.50	2,897	130	24.70	1.10
36	10	.....do	23.00	2,166	98	18.62	.81
37	3	High-grade dairy	30.00	4,933	275	52.25	1.74
38	12	Dual-purpose	25.00	4,570	188	35.72	1.43
39	20	High-grade dairy	26.00	5,300	315	59.85	2.30
40	18	Dual-purpose	33.00	5,098	203	38.57	1.17
41	7	.....do	30.00	3,726	165	31.35	1.05
42	4	.....do	23.00	2,400	103	19.57	.85
43	12	.....do	30.00	3,166	133	25.27	.84
44	4	.....do	25.00	3,134	131	24.89	1.00
45	9	High-grade dairy	24.00	4,600	236	44.84	1.87
46	8	Dual-purpose	17.00	1,900	75	14.25	.84
47	8	.....do	22.00	2,775	123	23.37	1.06
48	12	Polled Angus, half dual-purpose	30.00	3,316	139	26.41	.88
49	10	Grade dairy	29.00	5,100	228	43.32	1.49
50	17	Dual-purpose	34.00	6,250	250	47.50	1.40
51	8	Full-blood dairy	30.00	5,966	334	63.46	2.11
52	5	Dual-purpose	28.00	3,750	157	29.83	1.06
53	8	.....do	31.00	3,740	150	28.50	.92
54	10	.....do	32.00	3,725	156	29.64	.93
55	9	.....do	30.00	4,110	173	32.87	1.10
56	8	Grade dairy	28.00	5,885	252	47.88	1.71
57	7	Natives	24.00	3,737	164	31.16	1.29
58	8	Dual-purpose	29.00	3,500	130	24.70	.85
59	22	Grade Shorthorns	30.00	3,515	140	26.60	.88
60	7	Dual-purpose	25.00	2,839	122	23.18	.92
61	5	Grade Jerseys	25.00	5,116	225	42.75	1.75
62	4	Natives	20.00	2,256	90	17.10	.85
63	5	.....do	20.00	1,980	85	16.15	.81
64	5	.....do	22.00	3,359	150	28.50	1.30
65	5	Grade Shorthorns	26.00	3,207	140	26.60	1.02
66	18	Dual-purpose	22.00	2,080	83	15.77	.72
67	3	Natives	22.00	3,071	133	25.27	1.15

Returns from 100 dairy herds in Iowa—Continued.

Herd No.	Number of cows.	Kind of cows.	Estimated cost of keeping.	Yield of milk per cow.	Yield of butter per cow.	Value of butter per cow.	Value of butter from $1 in feed.
				Pounds.	*Pounds.*		
68	10	Dual-purpose	$23.00	3,100	130	$24.70	$1.07
69	12	.....do	33.00	3,658	120	22.80	.69
70	8	.....do	22.00	2,522	100	19.00	.86
71	22	Grade Polled Angus	25.00	1,438	58	11.02	.44
72	7	Grade Black Poll	28.00	5,780	213	40.47	1.45
73	8	Dual-purpose	25.00	2,587	108	20.52	.82
74	9	.....do	26.00	2,738	100	19.00	.73
75	9	.....do	24.00	2,100	89	16.91	.72
76	18	.....do	24.50	2,470	103	19.57	.80
77	10	.....do	25.00	3,063	122	23.18	.92
78	15	.....do	23.00	2,000	80	15.20	.66
79	7	.....do	20.00	1,580	63	11.97	.60
80	9	.....do	25.00	3,000	120	22.80	1.91
81	5	Dairy type	25.00	5,160	206	38.54	1.54
82	30	.....do	29.00	6,000	290	55.10	1.90
83	20	Grade Shorthorns	32.00	6,000	300	57.00	1.78
84	9	Grade Polled Angus	25.00	3,506	151	28.69	1.15
85	7	Grade Red Polls and Grade Shorthorns	35.00	5,211	226	42.94	1.23
86	11	High-grade Shorthorns	30.00	4,859	209	39.71	1.32
87	14	.....do	25.00	2,330	97	18.43	.74
88	8	Grade Shorthorns	29.50	1,782	65	12.35	1.42
89	3	.....do	26.00	3,711	145	27.55	1.06
90	12	.....do	23.00	3,213	141	26.79	1.16
91	9	.....do	27.00	3,063	126	23.94	1.89
92	11	.....do	33.00	4,226	210	39.90	1.21
93	8	.....do	27.00	4,593	193	36.67	1.36
94	4	Natives	26.00	4,575	189	34.91	1.34
95	5	Grade Shorthorns	33.00	5,466	233	43.27	1.31
96	12	.....do	33.00	4,285	177	33.63	1.02
97	12	...:.do	32.00	3,772	162	30.78	.96
98	7	.....do	35.00	5,168	225	42.75	1.22
99	16	High-grade Jerseys	25.00	4,745	296	56.24	2.23
100	12	High-grade Shorthorns	28.00	3,980	165	31.35	1.12

It will pay anyone seeking dairy knowledge to study this table carefully, especially the entries in the last column, showing value of butter from a dollar's worth of feed, in connection with the entries under "Kind of cows." It will be seen that 38 herds out of the hundred gave less than a dollar's worth of butter for a dollar in feed, and one gave less than half a dollar's worth. Sixty-two herds paid a dollar or over, while four herds paid over $2 for $1 in feed.

Most of the herds were fed liberally, and of some it might be said that they were heavily fed on grain. Only five herds were fed anything except the grain and forage raised on the farm, which consisted of corn in the majority of cases. A few used feeds richer in protein, and these secured better returns. Two or three fed a well-balanced ration and were well paid for it.

No. 39 fed gluten feed, bran, and silage—a well-balanced, succulent ration—to high-grade dairy cows and realized $2.30 in butter for each dollar's worth of feed. The cash received for butter was $59.85, or a net profit of $33.85 per cow. No. 83 fed bran and silage with extremely good results. No. 18 fed bran and clover hay, which made a fairly good ration for a herd of full-blood dairy cows, and secured 325 pounds of butter per cow in return.

Investigations were made by Hoard's Dairyman in several other States, but it will not be necessary to include the results here. Enough data have been presented to show what hundreds of dairymen are actually doing. Their faults, defects, and causes of failure have been pointed out and the methods practiced by their more prosperous neighbors set forth. These records will bear a good deal of study and can not fail to prove helpful to those interested in the subject of dairying.

HERD RECORDS FOR ONE YEAR OBTAINED FROM DAIRY PAPERS AND OTHER PERIODICALS.

The records here presented were secured largely from the various dairy papers; and while the data given in connection with them are not as full as desired, it is believed that they will be of some interest in showing records made in different parts of the country by different grades and breeds of cows.

Milk and butter-fat records of grade herds, and herds of mixed breeding, for one year.

Owner.	State.	Number of cows in herd.	Breed.	Average yield of milk.	Average butter fat.	Average yield of butter fat.
				Pounds.	*Per ct.*	*Pounds.*
Theo. A. Bauer	Wisconsin	15	Grade Jersey	7,697	4.55	350.2
Geo. Carer	Washington	33	do	7,049	4.59	323.5
S. C. Pike	Vermont	14	do			274.3
H. D. Griswold	Wisconsin	10	Grade Guernsey	6,654.6	5.65	376.0
Wm. Schulmerick	Oregon	25	Grade Shorthorn	6,509	3.83	249.3
O. C. P	Nebraska	12	Grade Hereford	4,567	4.34	198.2
A creamery patron	New York	12	Grade Durham	4,504	3.88	174.8
Geo. W. Whitney	Vermont	22	Grade Jersey	7,000	4.37	306
W. G. S	Ohio	6	do	6,655	4.48	298.1
A creamery patron	New York	11	do	3,860	3.91	151
Do	do	9	do	4,358	4.05	176.5
Karlen & Co	Wisconsin	35	do	6,091		
Mark Banfield	New York	9	do	6,191	4.91	304
G. W. Campbell	Wisconsin	16	Largely grade Holstein	6,743	3.88	261.6
A. E. N. & Sons	New York	36	Grade Jersey	5,650	4.50	254.2
J. M. Main & Sons	Pennsylvania	6	do	5,257	5.56	292.3
———	Tennessee	16	do	5,336	5.62	300
A dairyman	Western Kansas		Grade Holstein	8,263	3.74	309.1
W. M. M	Indiana	22	Grade Durham	5,558	3.93	218.4
H. V. Whitney	Oregon	7	Grade Ayrshire	5,411	5.02	271.6
W. H. Russell	Iowa	10	Grade Guernsey	5,165.6	4.66	240.7
F. H. T	Indiana	14	Grade Jersey			264.2
Geo. T. Van Norman		71	do			234.3
J. B. H	Iowa	8	Grade Shorthorn			265.7
L. D. B	Vermont	41	Grade Jersey			215.7
A. E. True	do	14	do			266.7
Geo. F. Munson	New York	17	do			316.9
John Gould	Ohio	13	Native	6,200		
J. H. C	Vermont	27	Purebred Ayrshire and grade Jersey.			260.1
S. H. Joiner	Wisconsin	10	8 purebred and 2 grade Jersey.	5,263	5.02	264.2
E. W. F	New York	20	Registered and grade Holstein.	8,552.9		
O. C. Phelps	Nebraska	17	Native			237.0
Mark Banfield	New York	13	Purebred and grade Jersey.			259.7
E. R. Towne	Vermont	35	High-grade cows	5,115	5.09	260.4
W. E. H	California	8	Native	6,000	4.58	274.8
A. M. Stevens	Washington	13	6 purebred and 3 grade Jersey, and 4 of mixed breeding.	6,570	6.33	415.9
John Jaquay	New York	25	8 registered and 17 grade.	8,208		
Nigh Bros	Wisconsin	13	Grade Holsteins and Alderneys.			241.7

Milk and butter-fat records of grade herds, and herds of mixed breeding, for one year—Con.

Owner.	State	Number of cows in herd.	Breed.	Average yield of milk.	Average butter fat.	Average yield of butter fat.
				Pounds.	*Per ct.*	*Pounds.*
E. E. H	Illinois	8	Purebred and grade Jerseys.			252
O. W. I	Vermont	9	8 native and 1 grade Jersey.	6,195		
M. G. & Co	New Jersey	15	Registered and grade Jerseys.			284.6
Mrs. A. H. M	Washington	14	Jerseys and grades	5,709	4.46	254.6
A creamery patron	New York	8	Grade Jersey and grade Durham.	4,002	3.88	155.3
T. C. S	Minnesota	11	Native	5,720	3.30	188.7
P. B. B	New Hampshire	50	do			259.5
O. A. White	Vermont		Purebred and grade Jersey.			220.3
Dr. W. P. Edwards	Massachusetts	1	Native	8,482		
Oakerman & Son	Oregon	12	Purebred and grade Jersey.			291.9
Chas. C. Lewis	Kansas	10	Native	5,127.7	5.09	261
Oak Hill Farm	Connecticut	30	20 Jerseys, 10 Holsteins.	6,692		
Henry Tippery	Ohio	6	Grade Jersey and Guernsey.	5,344	4.66	249.0
H	Connecticut	8	Native	5,310.5	5.20	276.4
E. W. F	New York	12	8 grade and 2 purebred Holsteins.	8,201		
J. F. M	Oregon	20	1 Holstein, 2 Polled Angus, balance Durham and Jersey grades.	6,568.6	3.84	252.9
A. M. Stevens	Washington	10	Purebred and grade Jerseys.	7,212	5.21	375.7
S. Rugh	Pennsylvania	8	Grade Jerseys and Durhams.	5,832	4.13	240.9
N. P. Oakerman	Oregon	14	12 grade and 2 purebred Jerseys.	6,113	4.78	292.2
E. G. Crandall	New York	10	Grades (Holsteins, Jerseys, and Guernseys).	5,282	3.56	189.1
H. T. Fuller	do	18	Grade Jersey, Guernsey, and Holstein.			195.6
R. T. Wheelock	do	5	3 grade Jersey, 2 grade Ayrshire.			260.7
Paul T. Norton	New Jersey	24	5 purebred Guernsey, 3 purebred Jersey, 6 grade Guernsey, and 10 grade Jersey.			261.4
——	Connecticut		Native herd No. 1	4,526	5.29	239.4
——	do		Native herd No. 2	6,178	4.18	258.2
E. Farnam	Wisconsin	13	Grade and thoroughbred Jerseys.	5,458	5.15	281.1

INVESTIGATIONS OF DAIRY HERDS BY EXPERIMENT STATIONS.

WORK DONE BY THE ILLINOIS EXPERIMENT STATION.

For over a year the department of dairy husbandry of the Illinois Experiment Station conducted field work among the dairymen of the State. A number of them were persuaded to weigh and sample the milk a sufficient number of times during the year to make it possible to estimate the performance of each cow with some degree of accuracy. These records brought the farmers face to face with facts that existed upon their own farms, and showed that some herds were kept at a good profit, some at a small profit, and others at an actual loss.

Figure 4 shows the apparatus used for keeping the records, and includes scales, milk sheet, and sample bottles, all conveniently arranged, so as to take as little time as possible. The following is a sample of a farmer's milk record:

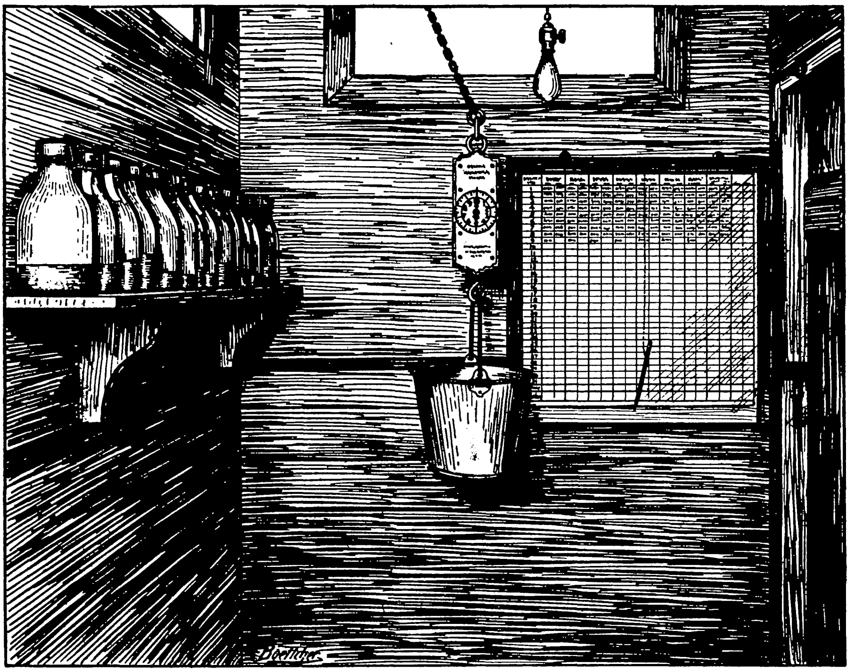


FIG. 4.—Scales, record sheet, and samples conveniently arranged.

Sample of farmer's milk record for one week, from July 30, p. m., to August 6, a. m.

Number of milking.	Yield of milk.										
	Spotty No. 1.	Black No. 1.	Black No. 2.	Bottle.	Milly.	Little Lamie.	Alice.	Belle.	Sleepy Eye.	Roaney.	Pet.
	Lbs.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*
1	20.5	14.1	11.3	15.0	15.4	10.9	6.9	7.4	7.5	5.5	15.1
2	13.5	6.8	6.5	10.2	13.2	8.3	5.2	3.9	5.1	3.9	10.3
3	22.2	16.8	11.7	15.0	17.0	11.0	6.7	7.9	7.7	5.2	15.8
4	14.2	5.2	8.2	10.7	14.2	8.5	5.2	4.9	4.6	3.9	10.9
5	20.3	15.7	6.0	13.7	16.3	10.7	6.8	6.5	7.3	4.9	15.7
6	16.7	7.0	9.2	11.9	15.6	9.5	5.1	5.1	6.1	4.6	12.7
7	18.5	15.5	4.7	14.1	16.7	9.6	7.0	6.0	6.6	5.0	14.5
8	16.0	7.8	7.3	11.2	14.4	8.7	5.0	4.9	6.2	3.9	14.7
9	22.0	14.5	13.5	16.4	18.5	10.7	6.9	7.2	6.9	5.3	15.8
10	14.0	9.5	6.9	10.5	15.0	8.3	4.8	4.6	5.3	3.6	11.4
11	19.9	9.8	4.0	12.9	17.5	11.0	6.7	6.1	7.0	5.2	14.9
12	14.5	13.0	6.8	11.5	14.5	8.1	4.4	4.6	5.8	3.9	11.3
13	22.6	13.2	6.7	16.1	18.4	11.6	8.6	7.4	7.3	7.8	16.1
14	15.4	7.1	8.8	11.3	14.7	8.6	4.3	5.2	5.9	4.2	11.7
Total	250.3	156.0	111.6	180.5	221.4	135.5	83.6	81.7	89.3	66.9	190.4
Fat, per cent	3.2	2.8	3.2	3.5	3.2	3.4	4.6	4.0	4.6	4.4	3.0
Fat, pounds	8.00	4.36	3.57	6.31	7.08	4.60	3.84	3.26	4.10	2.94	5.71

DESCRIPTION OF HERDS.

The following is a brief description of the herds studied:

Herd A.—Herd A was composed of natives, grade Shorthorns, grade Jerseys, and grade Holsteins. The average weight of the cows was 1,000 pounds. The herd was not bred for dairy purposes. Moreover, the cows showed neither dairy form nor capabilities of giving large yields of milk or butter fat. Nearly every cow showed some signs of disorder. They were not in a thrifty condition. A number of them aborted during the year, while others failed to get with calf and were sold. Some of them were disposed of so early in the test that their records are not calculated with the rest of the herd.

The herd did not yield the amount of milk and butter fat that it should for the amount of grain consumed. The owner did not keep an accurate account of the grain and roughage each cow ate. He fed a ration that was largely made up of corn and other foods rich in carbohydrates and containing a small percentage of protein. The cows received a small allowance of bran with the corn meal from October 1 to January 1. During the months of January and February the cows giving the largest flows of milk were fed 10 pounds of corn meal, 10 pounds of timothy hay, and 35 pounds of silage. This ration was altogether too rich in carbohydrates and contained a very low percentage of protein.

While the cows were being fed so much corn, the udders of a number of them became feverish and hard. Four of them were giving milk from only three teats each. It appeared that excessive corn feeding must have had something to do with the unsatisfactory condition of the herd, especially in the months of January and February. Rye and corn meal were mixed equal parts by weight, and about 8 pounds of the mixture was fed daily, together with timothy hay and corn silage, until May 1, when ground oats were substituted in the place of rye. The cows were turned out to pasture about May 25, but were given a small allowance of silage to July 1. From this time on to the completion of the year's work they received nothing but grass.

Herd B.—This herd was composed largely of common native and grade Holstein cows. There were a number of fairly good dairy cows in the herd and a number of promising heifers. The cows weighed an average of about 1,050 pounds. The general health of the herd was good. A few of the cows aborted during the year and some of them had caked udders. A few of them were sold on this account. A number of them were disposed of so early in the test that their records are not calculated with the rest of the herd but are given separately. On the whole it can be said that the cows received good care and were fairly well fed throughout the year. From October 1 to November 1 the cows were fed some ear corn and stalks and given pasture. During the months of November and December they received the following: Six pounds bran, 6 pounds corn meal, 8 pounds millet hay, and 10 pounds corn stover.

This ration would have been considerably better if 2 pounds of oil meal or gluten meal had been substituted for 3 pounds of corn meal and would have cost no more.

During the months of January and February the fresh cows received 7 pounds of bran and 4 pounds of corn meal, with oat straw and corn stover ad libitum.

In March and April the ration fed was about as follows: Six pounds bran, 3 pounds gluten feed, 5 pounds clover hay, and 8 pounds corn stover.

In May the fresh cows or the ones giving the most milk received the following: Seven pounds shorts, 3 pounds gluten feed, 5 pounds clover hay, and 8 pounds millet hay.

Each cow in the herd during the rest of the year received 2 pounds of shorts a day, besides running on good blue-grass pasture.

Herd C.—This herd was composed of natives, grade Shorthorns, grade Holsteins, one Red Poll and two grade Jerseys. The average weight of the cows was about

1,050 pounds and they were in good health during the whole year. There were no abortions or caked udders during the time the test was made. A number of the cows were sold early in the test because of their rapid falling off in milk flow when about three months along in the period of lactation. This is a very common fault with a great many cows kept in the dairy, and it is not noticed by the owners so much as it should be. They remember the cow when she gave a full pail of milk. The herd received good care during the year and was kept in a warm barn during the winter, where it received a fairly good ration. During October and a portion of November the fresh cows were pastured and fed daily about 3 pounds of bran, with shock corn. From November 15 to January 1 the ration consisted of the following feeds: Bran, 5 pounds; corn meal, 3 pounds; corn stover, ad libitum. If the farmer could have given his cows 10 pounds of alfalfa or clover hay and less corn stover it would have been a considerably better ration.

In January and February a little better ration was fed. It was about as follows: Five pounds wheat bran, 5 pounds corn meal, 1 pound gluten feed, 5 pounds timothy hay, 12 pounds corn stover.

During March, April, and May to the cows giving the largest flow of milk were given the following: Five pounds bran, 2 pounds gluten feed, 1 pound oil meal, and 15 pounds timothy hay.

The cows were turned out to pasture about May 20, and, as soon as grass was plentiful, they received no grain during the rest of the test. They received some forage, however, in connection with the pasture. Green peas and oats were fed in July and in August green sorghum. It can be said that the herd was well cared for the whole year, and moreover, every cow was fed as nearly as possible according to the amount of milk and butter fat that she was yielding. It must be borne in mind that the rations given above were fed to cows that were producing the most milk and butter fat and not to the strippers.

Herd D.—The cows in this herd consisted of full-blood Jerseys, grade Jerseys, full-blood Holsteins, grade Holsteins, natives, and grade Shorthorns. There were 60 cows in the herd when the test began, and 47 of them remained through the year. Thirteen of the cows were sold while the test was in progress, as they were found to be inferior and unprofitable animals. The herd contained a great many very fine dairy cows, and they made some very good records. The cows were in good condition during the whole year, and were kept in a scrupulously clean and well-ventilated barn, which was scrubbed once a day and whitewashed twice a year. Its sanitary condition was nearly perfect. The cows were not only well cared for, but they received well-balanced rations during the entire year. The results of this herd readily show the importance of taking good care of dairy cows and of feeding them well. Some of the rations that the herd received at different times during the year show clearly how well these cows were fed.

From September 1 to the middle of October the cows giving the largest flow of milk received a ration consisting of 6 pounds of grano-gluten and all the green corn that they would eat up clean. From October 15 to December 7 the ration to the best milkers was about as follows: Five pounds grano-gluten, 3 pounds corn meal, 45 pounds corn silage, and 5 pounds timothy hay.

The ration fed from December 7 to February 1 was 3 pounds shorts, 2 pounds corn meal, 3 pounds gluten meal, 45 pounds corn silage, and 5 pounds hay.

The cows seemed to do better when fed grano-gluten and corn meal than when they were fed shorts, corn meal, and gluten meal.

The ration from February 1 to March 15 was 5 pounds of grano-gluten, 3 pounds of corn meal, and 50 pounds of silage and timothy hay. From this time on until the cows were turned out to grass they received about the following: Seven pounds grano-gluten, 3 pounds corn meal, and 60 pounds silage.

It will be noticed that this ration contains no hay, corn silage being the only roughage that the cows received. The cows did very well on this ration, and when they were turned out to pasture, which was about June 1, they were in good condition. In June the cows received about 4 pounds of grano-gluten a day, besides grass. In July and August they had nothing but grass.

The rations just described were fed to the best milkers in the herd, the strippers and poor milkers getting according to the amount of milk they were producing.

Herd E.—This was a small dairy of seven cows, but each one proved herself to be a profitable animal. The herd consisted of grade Ayrshires, natives, and one grade Jersey. The average weight was 950. The cows were well fed and cared for during the test, and at the end of the year they were in good, healthy condition. No caked udders, abortions, or other mishaps came to this herd during the year, and no cows were sold, for everyone in the herd gave the owner a good profit. Nearly all the cows came fresh the last of September or the first of October, and went dry in August. It was a winter dairy.

In October and November the cows received 5 pounds of bran and 5 pounds of corn meal, with corn stover and some pasture. In December and to January 15 they received the following: 2.5 pounds of grano-gluten, 6 pounds wheat bran, 4 pounds corn-and-cob meal, 5 pounds millet, and 10 pounds corn stover.

This is not only a balanced ration, but it contains a variety of food stuffs and is palatable. Palatability should always be considered in making up a ration for a dairy cow.

From January 15 to March 1 the cows received the following ration: Six pounds of bran, 3 pounds of grano-gluten, 5 pounds of timothy hay, and all the corn stover they would eat up clean.

In March and to April 10 they received 2.5 pounds of bran, 2.5 pounds of grano-gluten, 5 pounds timothy hay, and corn stover ad libitum.

The first part of April the cows were turned out to rye pasture, and about the 15th of May were turned out to blue-grass pasture. The herd was given no grain from April 10 to the completion of the year's work.

Herd F.—In this herd were fourteen full-blood Holstein cows that were tested; their average weight was about 1,050 pounds. A few of the cows that did not enter the test were disposed of before the end of the year, as they had already proved themselves to be inferior and unprofitable animals. Less than half the dairy was matured cows. The herd was well cared for, but the cows did not receive a very large grain ration during the year, for the owner thought it would be more profitable to make less milk and butter fat than it would be to buy feed for his cows, the price of all kinds of grain being so very high.

The herd was kept in comfortable quarters, was in healthy condition during the test, and did a good year's work considering the grain that was fed.

The first period of the test the cows received a good ration, which contained the following: Four pounds bran, 4 pounds oats, 5 pounds clover hay, 10 pounds corn stover, and 35 pounds corn silage.

The second period of the test the cows received no grain. The ration consisted of 35 pounds of corn silage, 5 pounds clover hay, and all the corn stover they would eat. Each cow shrank considerably in milk flow, and the average per cent of butter fat was less during this period.

The cows received the following ration from the 1st of February until they were turned out to grass: Two pounds grano-gluten, 35 pounds silage, 5 pounds clover hay, 10 pounds corn stover, and oat straw ad libitum.

The cows were turned out to pasture about June 19. The owner did not have enough pasturage to feed his herd entirely, so the ration was supplemented with 30 pounds of corn silage a day. This ration was continued to the completion of the test. It is the belief of the owner that the cows would have given a larger profit if he had fed them more grain.

Herd G.—There were only five cows in this herd at the beginning of the test and two of them were sold three months after the work began, although they were good cows, and had averaged 7½ pounds of butter fat a week up to the time they were disposed of. The herd was not well fed or cared for, but did a very fair year's work, notwithstanding. The cows were not kept in a comfortable barn or one that was well cleaned. This man appeared to regard the dairy as "a necessary evil."

Of the amount of grain and roughage that each cow consumed during the year no record was kept, so no feed account was reported.

Herd H.—This herd consisted of eight native cows, whose average weight was about 1,000 pounds. The cows were very ordinary animals and they did a very ordinary year's work. Most of them calved in March, and were dry by the 1st of November, the owner not trying to make milk in winter. The barn in which these cows were kept was very poor, being cold and poorly cared for. The stock was often exposed to cold, rain, and snowstorms, and the frozen snow and ice was often removed from the animals' backs with brooms.

In March and April the cows received a small amount of bran and corn meal and about 1 pound of oil meal a day, with clover hay and corn stover. By May 15 the cows were turned into a pasture which was not very good, the greater portion of it being woods. They received in connection with pasturage about 2 pounds of bran a day, but this was not enough grain when the kind of pasture is considered. The latter part of July the cows were changed to a good clover pasture.

The following tables are good examples of the milk and butter-fat yield of all the cows at different times during the test. They clearly show that the cows were not persistent milkers. The individuality of the cows, the poor care, and the poor feeding which they received undoubtedly caused the rapid decline in milk and butter-fat production from one period to the next and their short period of lactation.

The cows gave more milk and butter fat in the August test than they did in July. This was probably due to the fact that the cows were taken from a poor woods pasture the last of July and put into a good clover pasture.

Record of two cows every seventh week during their period of lactation.

FANNY.

Week ending—	Milk.	Fat.	Fat.	Butter.
	Pounds.	*Per cent.*	*Pounds.*	*Pounds.*
March 31	192.4	3.2	6.16	7.18
May 19	142.4	4.3	6.12	7.14
July 7	84.3	4.0	3.37	3.93
August 25	7.0	6.9	.48	.56

LILY.

May 19	171	3.9	6.67	7.78
July 17	99	3.5	3.47	4.04
August 25	123.9	3.6	4.46	5.20
October 27	75.2	4.1	3.08	3.59

PERFORMANCE RECORDS.

The following tables show the results of investigations with the herds which have been described:

Comparison of the average performance of all the cows in each of the herds tested.

Herd.	Yield of milk.	Fat in milk.	Yield of butter.	Net profit or loss.	Cost of 100 pounds of milk.	Cost of 1 pound of fat.
	Pounds.	*Per cent.*	*Pounds.*		*Cents.*	*Cents.*
A	3,361	3.55	139	−$4.54	92.5	25.8
B	5,360	3.52	220	12.12	57.0	16.1
C	4,942	3.90	224	16.22	55.5	14.2
F	5,846	3.32	227	18.58	42.9	12.9
D	5,911	4.45	306	26.64	54.9	12.3
E	6,474	4.19	317	35.80	43.8	10.4
G	4,365	3.95	224	....	....	....
H	3,852	4.02	180	....	....	....

In estimating in the above table the profit or loss on a cow it was counted that the calf paid for her keep while dry and the skim milk paid for the labor.

Comparison of the results from the six most profitable cows in herd D with the results from five other herds.

Herd.	Number of cows in herd.	Total yield of milk.	Total yield of butter.	Total profit.	Total loss.
		Pounds.	*Pounds.*		
D	6	50,669	2,644	$296.97	....
A	28	94,126	3,890	....	$127.12
B	20	107,217	4,409	242.41	....
C	17	84,014	3,823	275.90	....
E	7	45,322	2,220	250.63	....
F	14	81,845	3,178	260.15	....

This table simply shows that a few good cows will yield a greater profit than large herds of unselected animals. It was found in herd D that 15 of the best cows gave a profit of $651.94, while the other 32 cows gave a profit of only $600.24, or the 15 cows gave the owner $51.70 more profit than the 32 other cows. It shows very clearly that it is far better to keep a few very good cows than large herds of our ordinary cows. The work is less and profit larger.

INVESTIGATIONS MADE BY THE ARIZONA EXPERIMENT STATION.

The following table shows the average yield of milk and butter fat per cow, with gross cash returns for the same, in 58 Arizona herds as reported by the Arizona State Experiment Station.

Average results with fifty-eight Arizona herds.

No. of herd.	Number of cows.	Average yield of milk.	Average yield of butter fat.	Average cash return.	No. of herd.	Number of cows.	Average yield of milk.	Average yield of butter fat.	Average cash return.
		Pounds.	*Pounds.*				*Pounds.*	*Pounds.*	
1	21	7,409	274.00	$54.80	30	25	4,865	191.15	$38.23
2	8	7,587	269.20	53.84	31	9	5,240	189.30	37.86
3	43	5,936	247.00	49.40	32	19	4,795	188.00	37.60
4	48	6,676	236.60	49.32	33	11	5,167	187.90	37.58
5	23	5,659	243.00	48.60	34	54	5,150	185.20	37.04
6	4	6,019	238.15	47.63	35	19	4,302	183.60	36.72
7	9	3,447	233.85	46.77	36	9	5,312	183.60	36.72
8	21	4,438	234.00	46.00	37	7	5,229	179.25	35.85
9	12	6,176	222.00	44.40	38	5	4,833	178.55	35.71
10	31	6,442	219.10	43.82	39	6	4,667	177.35	35.47
11	24	6,048	214.40	43.00	40	8	4,632	176.30	35.28
12	16	5,672	214.85	42.97	41	9	5,095	169.05	33.81
13	23	4,972	214.00	42.80	42	9	4,655	161.10	32.22
14	29	5,863	214.00	42.80	43	11	4,292	158.20	31.64
15	9	5,255	213.85	42.77	44	7	4,154	154.70	30.94
16	25	5,778	210.00	42.00	45	12	4,282	150.40	30.08
17	12	5,559	208.15	41.63	46	7	4,187	145.20	29.04
18	55	5,681	205.15	41.03	47	6	4,411	144.25	28.85
19	15	5,944	204.60	40.92	48	12	4,248	127.55	25.51
20	11	5,607	202.50	40.50	49	3	2,973	125.80	25.16
21	15	Cream.	201.00	40.20	50	10	4,085	125.75	25.15
22	6	5,942	200.45	40.09	51	11	3,520	124.25	24.85
23	43	5,505	200.00	40.00	52	6	3,735	113.00	22.60
24	4	4,774	200.00	40.00	53	4	3,075	109.10	21.82
25	10	4,819	199.50	39.90	54	5	3,059	102.50	20.50
26	17	4,658	199.50	39.90	55	20	3,297	101.65	20.33
27	6	5,886	198.10	39.62	56	5	2,585	99.80	19.96
28	44	5,232	197.50	39.50	57	5	2,642	87.15	17.43
29	9	5,462	192.25	38.45	58	11	2,019	66.40	13.28

Of the 58 herds reported, the last 16 (Nos. 43–58) failed to pay what was estimated to be the cost of keeping ($32). The difference between the returns from the average cow of the poorest herd and the average cow of the best herd is the difference between a loss of $18.72 and a profit of $22.80.

RECORDS OF DAIRY HERDS AT EXPERIMENT STATIONS.

The records presented here are of special interest and value for the reason that they have been kept with the greatest care and accuracy, and show the possibilities of production with grade herds under most favorable conditions of feeding and management, while at the same time many of the cows making up the herds were purchased of dealers in the vicinity of the station at moderate prices and were, therefore, no better than could be secured by any dairyman. The experiment stations have demonstrated very clearly that the farmer must get above average conditions to attain success and that, whatever kind of farming he engages in, he must use business methods and avail himself of the latest and best knowledge of the subject.

SUMMARY OF RESULTS AT 18 AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS.

The following table comprises the data for the dairy herds at 18 agricultural colleges and experiment stations:

Average yearly records of grade herds at

State.	Number of cows.	Average age.	Breed.	Breed of bull.	Cows raised.	Cows purchased.	Time of calving.
Pennsylvania	27	....	Grade Guernseys (24) and Guernseys (3).	Guernsey	Yes	....	Fall and winter.
Arizona	6	4	Natives	Jersey.	....	Yes	Spring
Michigan	20	5	Holsteins, Shorthorns, Jerseys, Brown Swiss.	Holstein, Shorthorn, Jersey, Brown Swiss.	Yes	....	Fall
New Jersey	28	....	Grade Jerseys, grade Guernseys, grade Ayrshires, grade Holsteins.	1 Guernsey, 1 Ayrshire.	Yes	Yes	All times
New York (Cornell).	19	4½	Largely grade Jerseys and grade Holsteins.	1 Holstein, 1 Jersey.	Yes	....	Fall
Tennessee	30	....	Three-fourths herd Jerseys, rest grades.	Jersey	Yes	Yes	All times
Utah	18	....	Natives, grade Devons, grade Jerseys.	do	Yes	Yes	do
Wisconsin	21	7	Purebreds and grades of Jerseys, Guernseys, Holsteins, Shorthorns, Red Polled.	Jersey, Guernsey, Holstein, Shorthorn, Red Polled.	Yes	Yes	do
North Carolina	7	8	Grade and registered Holsteins and Jerseys.	Jersey	Yes	Yes	Fall to spring.
Indiana	14	....	Jerseys and Holsteins	Jersey and Holstein.	Yes	Few	February and March.
Oregon	10	4½	Registered and grade Jerseys, Ayrshires, and Holsteins.	Registered Jersey.	Yes	Half	Fall
Nebraska	....	....	Jerseys, Holsteins and grades, Shorthorns.	Jersey, Shorthorn, Holstein.	Yes	Half	Mostly in fall.
Alabama	7	6	5 Jerseys, 1 Holstein (1901).	....	....	....	....
Kansas	49	5	Jerseys, Holsteins, Ayrshires, Red Polled, Shorthorns, Guernseys, and scrubs.	Jersey, Holstein, Ayrshire, Red Polled, Shorthorn.	Yes	....	Spring
Vermont	41	8	Ayrshires and grade Jerseys.	Jersey	Yes	Half	All times
Connecticut	20	....	Registered and grade Jerseys, Guernseys, Ayrshires, and Shorthorns.	do	Yes	Half	do
Missouri	30	9	Jerseys, 6 Holsteins	Jersey and Holstein.	Yes	....	Fall
Minnesota	23	....	Purebred and grade Jerseys, Guernseys, Holsteins, and Shorthorns.	....	....	Yes	All times

agricultural colleges and experiment stations.

Summer rations.	Winter rations.	Cost of keeping cow.	Average annual production.		Average fat.
			Milk.	Butter.	
			Pounds	*Pounds*	*P. ct.*
Soiling crops; grain ration in proportion to milk.	Silage; hay; stover; grain (corn meal, cob meal, oil meal, cotton-seed meal, bran, and gluten).	$45.00	5,436	320.0	5.1
Alfalfa pasture; no grain	Alfalfa pasture, supplemented by hay and corn-stalks.	32.00	5,340	325.0	5.22
Corn meal, dried beet pulp, gluten feed, bran, oil meal, middlings.	Silage; clover hay; mixture of grain as in summer.	41.00	7,444	344.0	3.96
Soiling crops; light grain ration	Silage; corn fodder; mixed hay; grain, 7 pounds.	45.00	6,528	335.0	4.41
Pasture; forage crops; grain (bran and cotton-seed meal).	Silage; hay; roots; grain, 8 pounds (bran, cotton-seed meal, corn meal).	45.25	7,327	322.0	3.76
Soiling crops; silage; bran and corn, 6 to 10 pounds daily.		35.00–40.00	5,400	320.0	5.1
Pasture; forage crops; grain	Alfalfa; corn fodder; hay; bran, wheat, barley, and corn.	21.33	5,713	276.5	4.15
Pasture; soiling crops; small grain ration.	Silage; corn fodder; sorghum; hay; roots; bran, corn, oats, oil meal, gluten meal, and brewers' grains.	38.00	7,309	369.0	4.19
Pasture; green corn; clover hay; cotton-seed meal and bran; shredded corn stover.	Silage; corn stover; cowpea hay; cotton-seed meal and bran.	40.00	5,673	324.0	4.9
Pasture; supplemented by forage crops; a little bran.	Silage; clover hay; bran, corn meal, oats, gluten meal, oil meal.	32.00–43.00	6,211	304.0	4.2
Corn, vetch, alfalfa, and crimson clover as soiling crops.	Clover and vetch hay; corn silage; grain (bran and oil meal).	30.00	4,962	258.0	4.47
Pasture and a little mixed grain, supplemented by silage or green corn.	Alfalfa; corn silage, corn stover; sorghum; hay; bran, corn, oats, oil meal, etc.	25.00	5,902	320.0	4.65
Pasture; grain, 2 to 3 pounds	Ensilage; cowpea hay; grain, 6 to 7 pounds.	24.00	4,136	231.0	4.79
Pasture; 3 pounds bran, 1 pound corn chop; green corn.	Alfalfa, 15 pounds; corn silage, 20 pounds; corn, 4 pounds, and bran, 3 pounds.	32.00	6,288	293.0	3.99
Pasture; soiling crops; silage; light grain ration.	Ensilage; hay; grain ration, 8 to 10 pounds.	51.00	5,558	329.0	5.07
Pasture; soiling crops; silage; bran, corn-meal, gluten meal, and brewers' grains.	Hay; silage; corn stover; bran, cotton-seed meal, dried brewers' grains, gluten meal.	53.46	5,498	326.0	5.08
Pasture; cotton-seed meal (small amount).	Hay; silage; corn chop; cotton-seed meal and gluten feed.	28.00	6,000	350.0	5.1
Pasture and light grain ration	Silage; mixed hay; bran, linseed meal, and barley.	37.82	6,408	351.0	4.7

THE HERD AT THE WISCONSIN UNIVERSITY AGRICULTURAL EXPERIMENT STATION.

The following are notes from Bulletin No. 102 of the Wisconsin station:

DESCRIPTION OF THE HERD.

The present university dairy herd was founded in the summer and fall of 1898. In selecting the various animals in the herd, the object sought was to secure grade cows that would fairly represent the different breeds of cattle kept for the production of milk in Wisconsin. The primary plan was to obtain five cows of each of the following breeds: Jersey, Guernsey, Holstein, and Shorthorn. The animals were selected from farmers' herds in various parts of the State, and were bought at prices ranging from $25 to $70 a head. Individual excellence as producers was the first consideration in the selection of the animals, breed characteristics being considered of secondary importance. Since the foundation of the herd several purebred animals, representing the various breeds, have been added from time to time. During the past four years complete yearly records have been kept of 38 cows in all, as follows: Twelve Jerseys, 4 of which were purebred; 9 grade Guernseys; 5 Holsteins, all purebred but one; 11 Shorthorns, 8 grades and 3 purebreds; and 1 grade Red Polled cow. The Jerseys fairly represented their breed and were in the main of what is generally known as the extreme dairy type. The Guernseys and Holsteins were of a stronger type of dairy cows and may be considered good representatives of these breeds. The Shorthorns were of medium size and fairly represented the milking, or dual-purpose, strain of the breed as it is found in our State.

CARE AND MANAGEMENT.

It has been our practice in the management of the herd to surround the cows with the conditions best suited for an economical and large production of milk and butter. During the entire winter period the cows were confined in comfortable stalls in the barn, excepting for a short time on dry, warm days, when they were allowed to exercise in a sheltered, roomy yard. They were watered twice daily in cement troughs in the barn and were not allowed in the open air for at least a couple of hours after watering. The following daily schedule of work in the dairy barn shows the system of management of the cows:

4.20 a. m. Grain fed.
4.30 a. m. Milking.
6 a. m. Silage fed.
7.30 a. m. Stables cleaned and bedded.
8.30 a. m. Watering.
9 a. m. Hay fed.
10 a. m. Cows groomed.
2 p. m. Cows turned out.
3.30 p. m. Watering.
4 p. m. Stables cleaned; grain fed.
4.30 p m. Milking.
6 p. m. Silage fed.
8 p. m. Bedding arranged.

Winter feeding.—The roughage fed to the cows during the winter periods consists of some corn fodder and sorghum hay during the early fall months, and later of roots, mostly potatoes, sugar beets, corn silage, and mixed hay, largely timothy and Kentucky bluegrass.

The grain feed which the cows received during the winter period was made up of a variety of different feeds: Wheat bran, corn, oats, oil meal, gluten feed, gluten meal, and brewers' grains—the first four of these being fed throughout the period, and the others at times in smaller quantities. Both the grain and the roughage were weighed out to each cow at every feeding, and a careful record was kept of the amounts of each kind of feed given.

Summer feeding.—The treatment of the herd during the summer periods has been that known as "partial soiling;" that is, the cows were pastured every night and a part of each day during the spring and early summer. They were allowed corn silage every day until about May 15, after which time they were fed a rotation of soiling or green crops in the barn. These crops included fall-sown rye, alfalfa, clover, peas and oats, vetches and oats, and oats sown alone, followed by early-sown Dwarf Essex rape, Early Dent corn, sorghum, evergreen sweet corn, and, last of all, late-sown rape. All these crops were not fed in any one year, but they have been fed during the four-year period under consideration. They were grown on one-eighth and one-fourth acre plats and were cut and hauled to the barns every day as needed, and supplied ample succulent, green feed during the summer periods.

The pasturage during the summer periods under consideration was limited in quantity and was generally poor in quality, owing to seasons of extreme drought from 1898 to 1901, and excessive precipitation during 1902.

The allowance of grain during the summer periods was, as a rule, greatly reduced from that fed in winter, and was limited with certain cows to wheat bran alone, of which only a couple of pounds a day was fed in some cases. Under our conditions of limited pasturage we have found it necessary to feed some grain through the entire year, except when cows are dry, or, in case of very persistent milkers, when they are being dried off.

MILK AND BUTTER RECORDS.

The cows were milked at the same hour morning and evening during the year, and the milking was proceeded with as rapidly and thoroughly as possible. The milk from each cow was weighed and the weight recorded on the milk-record sheet as soon as the milking was done; a small sample of milk was placed in a pint composite sample jar bearing the name of the particular cow, and weekly tests were made of the samples thus obtained. The percentage of butter fat found in the composite samples, multiplied by the total quantity of milk produced by the different cows during the week was taken as their weekly production of butter fat, and these data, together with the amounts of the various kinds of feed eaten during the week, were entered in the herd-record book.

THE HERD AT THE NEW JERSEY AGRICULTURAL COLLEGE FARM.

The herd of 30 milking cows is composed largely of grades of the principal dairy breeds. Heifers are raised from cows showing a profitable dairy performance and added to the herd from time to time. Occasionally cows are purchased from dealers in the vicinity, at an average cost of about $50. The average production of milk and butter per cow for the past seven years has been 6,527 and 337 pounds, respectively.

Records are kept of the cost of food, which has averaged $45 for each animal during seven years. The soiling system is practiced in summer with a great variety of crops. During the early part of the season rye, wheat, crimson clover, alfalfa, and peas and oats furnish the greater part of the supply, and later mixed grasses, cowpeas, soy beans, corn, and barley. The forage is hauled to the animals fresh daily and fed in racks in the open field. A limited supply of grain is fed, of such a character as will make the nutritive ratio of the total ration about 1 to 6. In winter corn silage, corn stover, and mixed hay constitute the roughage; 6 to 8 pounds of grain, consisting of wheat bran, dried brewers' grains, and cotton-seed meal, complete the ration. The animals are turned into a large yard for exercise on pleasant days, but housed in bad weather.

A part of each of the record sheets in use at the New Jersey Agricultural College farm is shown below:

Office record sheet—Milk record, New Jersey Agricultural College farm.

Month.	Name of cow.														
	Viola.	Hilda.	Model.	Lilith.	Select.	Gypsy.	Diana.	Pearl.	Myrtle.	Woodlawn.	Victoria.	Buela.	Zola.	Blue.	Raritan.
	Lbs.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*
1															
2															
3															
4															
5															
6															
Total															
Per cent butter fat															
Pounds butter fat															
Pounds butter															

Barn record sheet—Milk record, New Jersey Agricultural College farm.

Month.	Name of cow.													
	Viola.		Hilda.		Model.		Lilith.		Select.		Gypsy.		Diana.	
	a. m.	p. m.	a. m.	p. m.	a. m.	p. m.	a. m.	p. m.	a. m.	p. m.	a. m.	p. m.	a. m.	p. m.
	Lbs.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*
1														
2														
3														
4														
5														
6														
Total														

THE HERD AT CORNELL UNIVERSITY AGRICULTURAL EXPERIMENT STATION.

This herd is rather remarkable for the reason that the average yield of milk per cow was raised from 3,000 pounds in 1874 to 7,500 pounds in 1898 by the use of a dairy sire and careful feeding. No new cows were purchased.

The university herd has consisted during the past several years of about 20 cows, the most of which have been grade Jerseys and grade Holsteins. In building up the herd the aim has been to form one that would furnish an object lesson to those farmers who desire to improve their herds but do not feel able to purchase purebred stock entirely. Accordingly, the herd has been developed from the ordinary stock of the neighborhood by the use of purebred bulls and a rigid selection of the best heifers. This course of breeding was established by Professor Roberts in 1875 and has been continued ever since. In 1874 the average yield of milk per cow was a little more than 3,000 pounds. The descendants of these same cows produced an average of over 7,500 pounds during the year 1897–98. This increase of two and a half times is the result of judicious selection of sire and dam, together with careful feeding, and is a result which every farmer can obtain by following a similar course.

The general management of the herd is on the plan of a winter dairy, i. e., the cows are bred, so far as possible, to calve during the early fall months. They are milked about ten months and most of them are dry during July and August. In the summer they are at pasture, which is supplemented with corn or other green forage crops whenever the pasture becomes dry or scanty. In the winter they are stabled at night and during the day run in a covered yard, which is well bedded and where they have access to water, none being supplied in the stable.

Since the introduction of the Babcock test a careful record has been kept of the amount of butter fat produced by the herd. Each cow's milk is weighed daily and once a week a sample of an equal amount of night's and morning's milk is taken from each cow. The fat in these samples of mixed milk is determined by the Babcock test and this percentage multiplied by the number of pounds of milk given during the week is taken to represent the number of pounds of fat produced during that week. Although this method does not give the actual amount of fat produced, still it gives a very close approximation thereto and is sufficiently accurate for practical purposes in estimating the producing power of any individual cow.

THE HERD AT THE VERMONT EXPERIMENT STATION.

The herd is composed mainly of high-grade Jerseys, and continuous records have been kept for the past eight years (see p. 62). The herd was established in 1888 by the purchase of about half a dozen cows. These were all grades. Purchase and breeding increased the size of the herd so that for some years it ranged from 12 to 20 cows. In 1891 purchases were made of registered Ayrshires, Holsteins, and Jerseys of both sexes. The larger part of this herd was destroyed because of tuberculosis in January, 1894. In the following April a purchase of some twenty-odd animals was made and a new herd established, consisting mainly of grade Jerseys and registered Ayrshires. This herd has since then from time to time been increased by purchase as well as by breeding, and to-day consists of about 60 cows in milk and 20 yearlings, calves, etc. The herd is still mainly composed of high-grade Jerseys, with perhaps half a dozen each registered Ayrshires and Jerseys.

The cows freshen at all times of the year, an all-the-year-round dairy being kept. They are at pasture from late May until late October, in the barn the remainder of the year, and are stabled each night throughout the year. The larger part of the herd is during barn life under feeding experiment, involving a great many different changes in feed, so that one can hardly say that there is any regular system used. Hay, corn silage, and apple pomace silage are the principal rough feeds used, and bran is the main grain feed, with all sorts of other grain feeds used as occasion warrants. A particularly fine specimen of Jersey bull is always kept at the head of the herd.

THE HERD AT THE AGRICULTURAL COLLEGE, UTAH.

This herd of 15 grade or common cows was purchased during the spring of 1894. Records have been carefully kept and furnish a good opportunity for showing the possibilities not only of a herd of grade cows but of their progeny from a purebred dairy sire as well, for all the heifers, with one exception, were raised. The care bestowed upon the cows was not essentially different from that given a herd of good dairy cows by any careful dairyman. During the winter season of six to seven months the cows were stabled, with the exception of one to four hours daily when they were turned into a yard in good weather. During the summer they were pastured, except a few which were used in a soiling experiment.

The fodders used were varied, but consisted mainly of alfalfa, corn fodder, and mixed hay. The grains used depended upon the market price. A little more than one-half consisted of bran, about one-half of the remainder wheat, and the rest barley and corn.

The cows were milked mainly by one person; when two were employed the same cows were milked each day by the same person. In the main the milking was started about 7 o'clock in the morning and 4.30 to 5 o'clock in the evening.

In breeding the cows, the aim has been to have some of them come fresh at all seasons of the year. As is the experience with all herds, it has not been possible to control this factor, particularly with the older cows.

An exact record has been kept of each cow in the herd, including the weight of the milk and the percentage of fat at each milking. A record has also been kept of the food of the cows, both in kind and amount. The average production of milk for this herd was 5,601 pounds per cow, the range being from 3,931 pounds to 7,882 pounds. The yearly production of butter fat per cow was 237 pounds, the range being from 149 pounds to 314.5 pounds. The cows averaged 1,020 pounds in live weight and ate 4,518 pounds (about 2¼ tons) of rough fodder each per year, and 1,305 pounds of grain. The total dry coarse fodder and grain eaten, therefore, averaged close to 3 tons in a year. The grain fed was gauged to the size and productive capacity of the cow. The total food cost for each cow averaged $21.43 for each year.

The first of the accompanying charts (fig. 5) shows graphically the average production of milk, butter fat, and solids not fat given by each cow, and brings out prominently the great variation in production for the different cows in the herd.

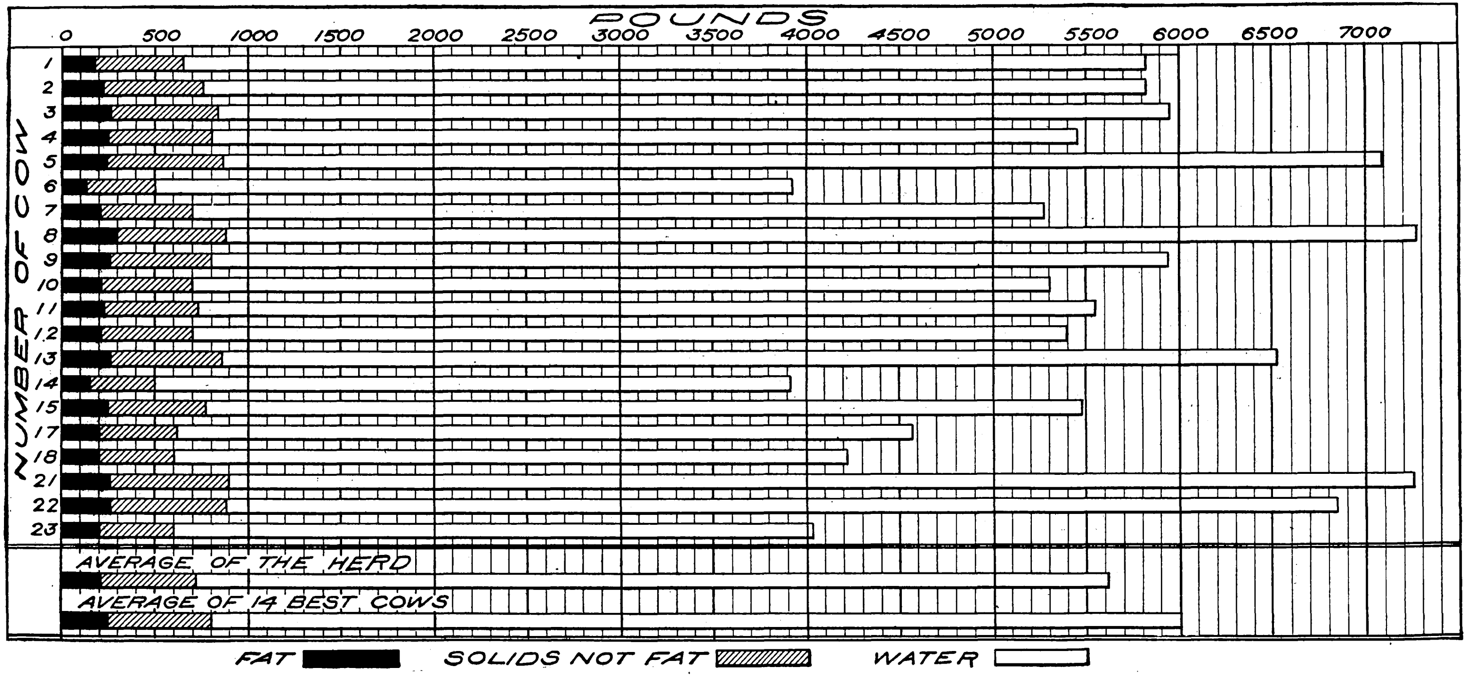


FIG. 5.—Chart showing milk, butter fat, and solids not fat yielded by cows of Utah Experiment Station herd.

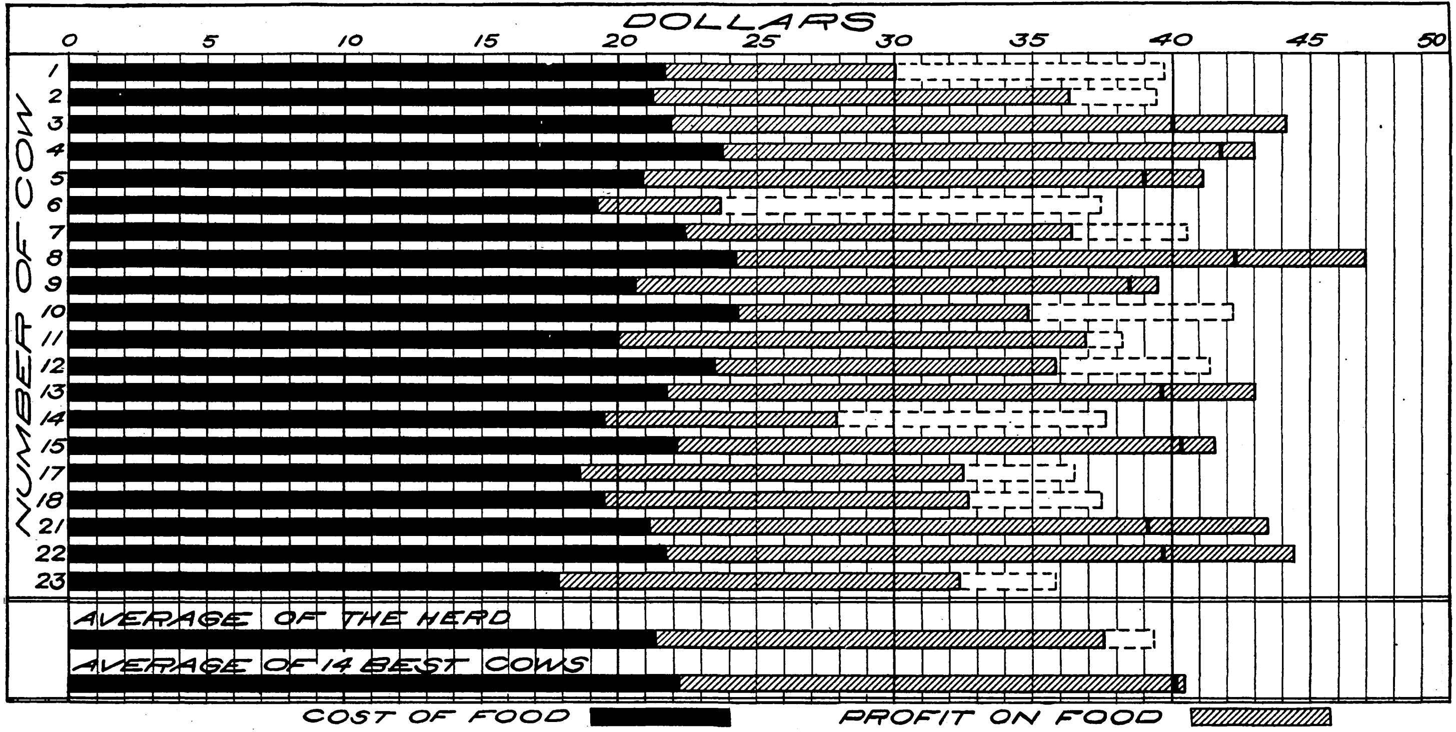


FIG. 6.—Chart showing yearly returns per cow of Utah Experiment Station herd on the basis of 16 cents per pound of butter fat. The dotted extensions show how much more the cow should have returned to pay $18 per year for labor. Ten out of the 20 cows gave returns sufficient to pay cost of food, $18 for labor, and a profit in addition, the amount of which is indicated by the extensions beyond the short heavy perpendicular lines.

The second chart (fig. 6) shows the average yearly returns from the cows figured on the basis of butter fat at 16 cents per pound, and brings out prominently the great variation in profit from the different cows.[a]

A part of the record sheet used at the Utah Experiment Station is shown below. The full sheet provides for the weights of the night's and morning's milk for a month, and may be arranged to suit any number of cows in the herd.

August.		Dolly.	Spot.	Brindle.
1.	a. m.			
	p. m.			
2.	a. m.			
	p. m.			
3.	a. m.			
	p. m.			
4.	a. m.			
	p. m.			

MILK AND BUTTER-FAT RECORDS OF GRADE AND MIXED HERDS FOR SERIES OF YEARS.

(1) Records of Experiment Station Herds.

The following table shows the records for series of years of 10 experiment station herds:

Records of experiment station grade and mixed herds for series of years.

Owner.	Number of cows.	Breed.	Age of cows.	Year.	Average yield of milk.	Fat in milk.	Average yield of butter fat.
			Years.		*Pounds.*	*Per ct.*	*Pounds.*
Connecticut Experiment Station.	20	Jerseys, Guernseys, Ayrshires, Holsteins, and their grades.		1899	4,914	4.96	243.94
	25			1900	5,515	4.93	271.97
	21			1901	5,580	5.02	280.29
	20			1902	5,448	5.39	293.66
	17			1903	6,120	5.11	312.86
Average	21				5,515	5.09	280.54
Cornell University, New York.	19	Largely grade Jerseys and Holsteins.	4.0	1891-92	7,163.4	3.94	282.07
	17		4.6	1892-93	6,875	3.93	270.28
	19		4.5	1893-94	7,563.3	3.86	291.92
	22		4.8	1894-95	7,162.9	3.77	270.12
	19		4.2	1895-96	7,456.2	3.57	265.88
	20		4.2	1896-97	7,495.4	3.62	271.66
	19		4.7	1897-98	7,575.3	3.68	278.51
Average	19				7,327.4	3.76	275.78
New Jersey Experiment Station.	23	Purebreds and grades of the principal dairy breeds.		1896	6,153	4.25	261.51
	25			1897	6,791	4.44	301.54
	25			1898	6,911	4.50	310.97
	30			1899	6,612	4.57	302.06
	30			1900	6,529	4.33	282.69
	30			1901	6,377	4.39	279.86
	34			1902	6,320	4.35	274.89
Average	28				6,528	4.41	287.65

[a] For other records of this herd, see p. 69.

Records of experiment station grade and mixed herds for series of years—Continued.

Owner.	Number of cows.	Breed.	Age of cows.	Year.	Average yield of milk.	Fat in milk.	Average yield of butter fat.
			Years.		*Pounds.*	*Per ct.*	*Pounds.*
Utah Experiment Station.	14	Grades of Devon, Jersey, and Shorthorn.	....	1894-95	5,656	4.07	230.2
	13		....	1895-96	5,558	4.22	234.7
	7		....	1896-97	5,735	4.11	235.7
	8		....	1897-98	5,977	3.99	238.3
	9		....	1898-99	5,638	4.36	245.8
Average.........	10	....	....	....	5,713	4.15	236.9
Arizona Experiment Station.	6	Unknown	....	1900-1901	4,706	5.35	252.0
	6		....	1901-2	5,643	5.09	287.1
	6		....	1902-3	5,672	5.21	295.7
Average.........	6	....	....	....	5,340	5.21	278.3
Pennsylvania State College.	22	Guernseys and grade Guernseys, mostly the latter.	....	1900	4,801	4.96	237.9
	23		....	1901	5,084	5.18	263.5
	22		....	1902	5,876	5.14	302.2
	27		....	1903	4,782	5.22	249.7
	27		....	1904	5,436	5.05	274.5
Average.........	24	....	....	....	5,196	5.09	264.7
Vermont Experiment Station.	33	Jerseys and Ayrshires—mostly high-grade Jerseys.	....	1895	5,633	4.95	278.6
	37		....	1896	5,431	5.11	277.7
	29		....	1897	5,730	5.06	289.7
	42		....	1898	5,296	5.07	268.3
	47		....	1899	5,462	5.02	274.3
	45		....	1900	5,935	5.15	306.0
	47		....	1901	5,814	5.07	294.9
	49		....	1902	5,166	5.03	260.0
Average.........	41	....	....	....	5,558	5.07	281.7
Wisconsin Experiment Station.	12	Jerseys, Holsteins, Shorthorns, and grade Jerseys, Guernseys, Shorthorn, and Red Polled.	....	1898-99	6,546	4.77	312.0
	17		....	1899-1900	6,602.7	4.52	298.3
	16		....	1900-1901	7,003.6	4.30	300.9
	19		....	1901-2	8,130.2	4.23	343.7
	11		....	1902-3	7,658.2	4.07	312.0
	21		....	1903-4	7,913	4.19	331.7
Average.........	16	....	....	....	7,309	4.33	316.4
Oregon Experiment Station.	10	Jerseys, Ayrshires, and grade Jerseys and grade Holsteins.	4.5	1897	4,997	4.12	205.94
	10	.....do.................	4.5	1898	5,616	3.99	224.17
	10	Registered and grade Jerseys, and 1 Ayrshire.	4.5	1899	4,585	4.52	207.20
	10	Registered Jerseys and 1 Ayrshire.	4.5	1900	4,611	4.78	220.31
	10	.....do.................	5.5	1901	4,987	4.71	235.90
	13	.....do.................	5	1902	4,977	4.74	235.80
Average.........	10	....	....	....	4,962	4.47	221.55
Nebraska Experiment Station.	10	1 Jersey, 8 grade Jerseys, 1 Shorthorn-Jersey.	....	1897	6,130	4.77	292.27
	11	1 Jersey, 9 grade Jerseys, 1 Shorthorn-Jersey.	....	1898	6,512	4.86	361.19
	14	8 Jersey grades, 3 Hereford grades, 3 Shorthorn-Jerseys.	....	1899	4,675	4.53	211.74
	7	3 Jerseys, 3 grade Jerseys, 1 Shorthorn-Jersey.	....	1900	5,094	4.70	239.44
	10	2 Holsteins, 4 Jerseys, 3 grade Jerseys, 1 Shorthorn-Jersey.	....	1901	6,928	4.37	302.94
	18	8 Jerseys, 3 Holsteins, 6 grade Jerseys, 1 Shorthorn-Jersey.	....	1902	5,713	4.55	259.70
	19	10 Jerseys, 3 Holsteins, 4 grade Jerseys, 1 Shorthorn, 1 Shorthorn-Jersey.	....	1903	5,857	4.63	271.44
	16	5 Jerseys, 8 Holsteins, 1 Shorthorn, 2 Shorthorn grades.	....	1904	6,305	4.10	258.51
Average.........	13	....	....	....	5,902	4.65	274.7

HERD RECORDS FOR SERIES OF YEARS OBTAINED FROM DAIRY PAPERS AND OTHER SOURCES.

The records which follow were secured largely from the various dairy papers and publications and are believed to be reasonably accurate. Records for series of years are of value to dairymen in showing whether the productive capacity of their herds is increasing or decreasing from year to year. If a careful record has been kept of each individual cow, it is easy to determine which has contributed to the gain or loss as the case may be.

Milk and butter-fat records of grade and mixed herds (aside from experiment stations) for series of years.

Owner.	State.	Number cows.	Breed.	Year.	Average yield of milk.	Average fat in milk.	Average yield of butter fat.
					Pounds.	*Per cent.*	*Pounds.*
Geo. Montaney	South Dakota	6	Mixed breeding	1898	4,429.00		
		6	do	1899	6,463.00		
		6	do	1900	7,075.00		
		7	do	1901	5,888.00		
Average					5,963.75		
John Armstrong	South Dakota	16	Grade Shorthorns	1898	6,001.00	4.28	256.9
		16	do	1899	6,342.00	4.29	272.1
		16	do	1900	6,483.00	4.28	277.5
Average					6,275.33	4.28	268.83
W. H. R	Iowa	20	Grade Guernsey	1898			265.3
		20	do	1899			270.0
		20	do	1900			274.7
		20	do	1901			309.4
Average							279.85
H. D. Griswold	Wisconsin	4-18	Grade Guernsey	[a]1891-1900			300.6
E. R. Towle	Vermont	16	Native	1898			231.4
		17	do	1899			270.0
		17	do	1900			312.0
Average							271.13

[a] Or 10 years.

MILK AND BUTTER-FAT RECORDS OF SINGLE GRADE COWS FOR ONE YEAR.

The records presented under this heading will give some idea of what may be expected from good grade cows of the various dairy breeds. The State in which the records were made is entered, and a glance at the table shows clearly that cows producing good records are not confined to any one locality or section of the country. Good records are more dependent upon the care and treatment cows receive than upon any natural climatic conditions or peculiar characteristics of soil.

A considerable number of cows have been included in this list, for the reason that full year's records are of much more value than those for shorter periods. A cow must be supported during the whole year; therefore it is the full year's record that determines the profit. (For yearly records of grade cows at experiment stations, see pp. 65–78.)

Milk and butter-fat records of single grade cows, not in experiment-station herds, for one year.[a]

Owner.	State.	Name of cow.	Breed.	Age.	In milk.	Yield of milk.	Average fat in milk.	Yield of butter fat.
				Yrs.		*Pounds.*	*P. ct.*	*Lbs.*
——	Ill	Pet	Ayrshire	8	330 days	7,488.0	4.56	341.0
——	do	Brindle	do	9	327 days	7,828.0	4.41	345.0
E. C. Birge	Conn	No. 8	Guernsey			5,400.0		
John Gould	Ohio	Slicker	do		365 days	9,950.0		
H. D. Griswold	Wis	No. 4	do	3	360 days	7,879.0	5.50	433.3
Do	do	No. 5	do	3	360 days	8,727.0	5.67	494.8
Do	do	No. 8	do	3	360 days	4,736.0	6.4	303.1
Chas. U. Grote	do	Dora	do			7,890.0		
Do	do	Daisy	do			7,591.0		
L. D. Staples	Minn		do		260 days	4,894.0	5.4	264.27
——			do		360 days	8,001.5	5.2	416.0
W. H. Russell	Iowa	No. 7	do			6,846.0		
H. C. Carpenter	Minn	Star	do			5,305.0	5.06	268.4
C. L. Peck	Pa	Daisey	Jer.-Guern		12 mos	10,400.0	5.2	540.8
L. D. Staples	Minn		Guernsey		12 mos	8,000.0	5.2	416.0
N. I. Bowditch	Mass		do		12 mos	11,079.0		
Thomas Pierce	Wis		Hereford			6,769.0	4.8	324.9
Do	do		do			6,494.0	4.5	292.2
E. C. Birge	Conn	No. 5	Holstein			6,224.0		
Do	do	No. 6	do			5,875.0		
Do	do	No. 7	do			5,569.0		
H. D. Griswold	Wis	No. 1	do	9	360 days	10,000.0	5.20	520.0
N. B. Carr	N. Y		do		360 days	13,604.0		
H. D. Hughes	Ill	No. 7	do			8,102.0	4.0	323.8
Do	do	No. 8	do			7,056.0	3.89	274.5
——	do	Black Hawk	do	4	335 days	6,500.0	3.99	259.0
——	do	No. 317	do	8	316 days	10,151.0	3.68	374.0
——	do	No. 129	do	10	325 days	8,949.0	4.52	404.0
C. E. Bull	Colo		do		365 days	10,965.0	4.40	482.5
E. C. Birge	Conn	No. 1	Jersey		360 days	7,238.0		
Do	do	No. 3	do			6,850.0		
C. E. Bull	Colo		do		365 days	12,084.0	3.81	460.4
Charles Hawes	Mass		do		365 days	9,376.0		
Geo. W. Whitney	Vt		do			13,147.0		
H. D. Griswold	Wis	No. 7	do	5	360 days	5,940.0	6.50	386.1
C. H	Pa		do	7	362 days	7,650.0	5.5	
Do	do		do		330 days	8,300.0		
Theo. A. Bauer	Wis	No. 3	do	5		7,602.0	4.60	349.7
Do	do	No. 5	do	4		9,369.0	4.20	393.4
Do	do	No. 8	do	5		7,321.0	4.24	310.4
Do	do	No. 9	do	5		7,630.0	4.20	320.4
Do	do	No. 11	do	4		7,319.0	4.20	307.3
Do	do	No. 13	do	4		8,195.0	4.20	344.1
Do	do		do		360 days	10,733.0	4.85	520.7
W. D. Honchilt	Mich		do			6,275.0	4.71	295.6
H. C. Carpenter	Minn	Pansy	do			6,165.0	5.0	308.3
Do	do	Cherry	do			5,115.0	5.68	290.5
Do	do	Blackberry	do			4,750.0	5.0	237.5
G. N. K	do		do			6,265.0	5.15	322.4
Adam M. Stevens	Wash	Peggy	do		360 days	12,567.0	4.80	603.2
R. S. and H. W. Davis	Vt		do		12 mos			429.4
Thomas Pierce	Wis		do			6,169.0	5.0	308 5
Do	do		do			6,089.0	5.6	340.9
Do	do		do			5,502.0	6.0	330.1
Do	do		do			6,470.0	4.74	306.6
J. L. Hoyle	Iowa		do		12 mos	6,432.0	5.81	373.7
M. H. Olin	N. Y	Black Abbott	do		11 mos	9,048.0	5.09	460.5
Do	do	Red Goat	do		12 mos	5,499.0	5.31	292.0
Do	do	Pansy	do		11½ mos	5,721.0	5.05	289.0
Do	do	Mollie	do		10 mos	6,233.0	5.49	342.2
Do	do	Java's Pride	do		11½ mos	9,536.0	5.46	520.7
Do	do	Mulley Jersey	do		11½ mos	7,576.0	5.77	437.1
Do	do	Allen's Heifer	do		12 mos	7,707.0	6.22	479.4
Do	do	Toad 2d	do		12 mos	8,240.0	5.84	481.2
Do	do	Toad 3d	do		12 mos	7,284.0	5.08	370.0
Do	do	Bell Cooper	do		12 mos	7,281.0	5.38	391.7
Do	do	Toad 4th	do		11 mos	5,970.0	6.04	360.6
Do	do	Primrose	do		12 mos	7,751.0	5.00	387.5
Do	do	Blossom	do		11½ mos	6,148.0	5.46	335.7
C. E. Bull	Colo		Red Poll	10	335 days	6,945.0	4.23	294.0
——	Ill	Crazy			365 days	12,026.0	3.88	466.4
E. C. Birge	Conn	No. 2	Shorthorn			7,229.0		
Do	do	No. 4	do			6,263.0		
W. S. Hill	Wis	Toney	do		365 days			256.16
F. G. J. Van Wert	Ohio		do		360 days	9,251.0		
C. E. Bull	Colo		do		175 days	4,036.0	3.4	137.2

[a] For other yearly records, see p. 66.

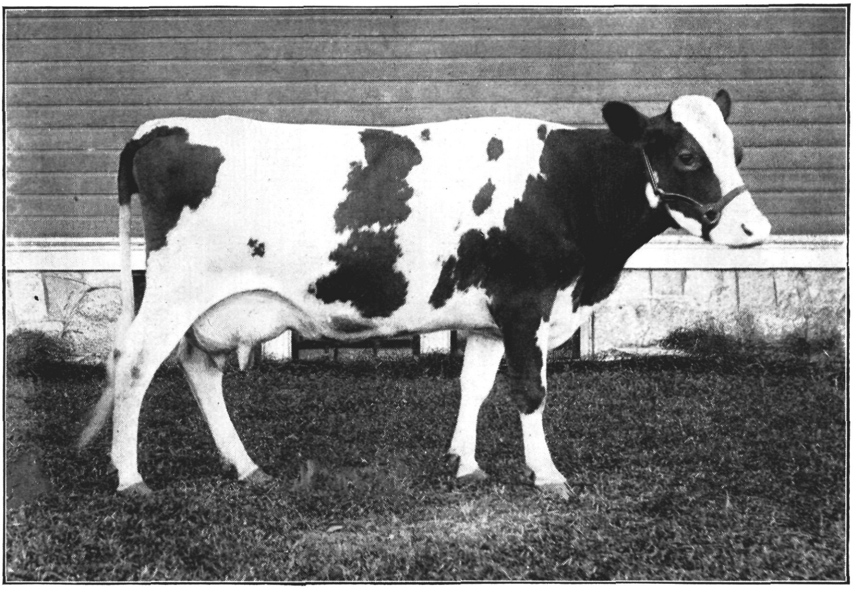


FIG. 1.—DORA. GRADE GUERNSEY.

Record for 1 year 8,146.9 lbs. milk, 5.12 per cent fat, 416.82 lbs. fat equal to 488 lbs. butter.

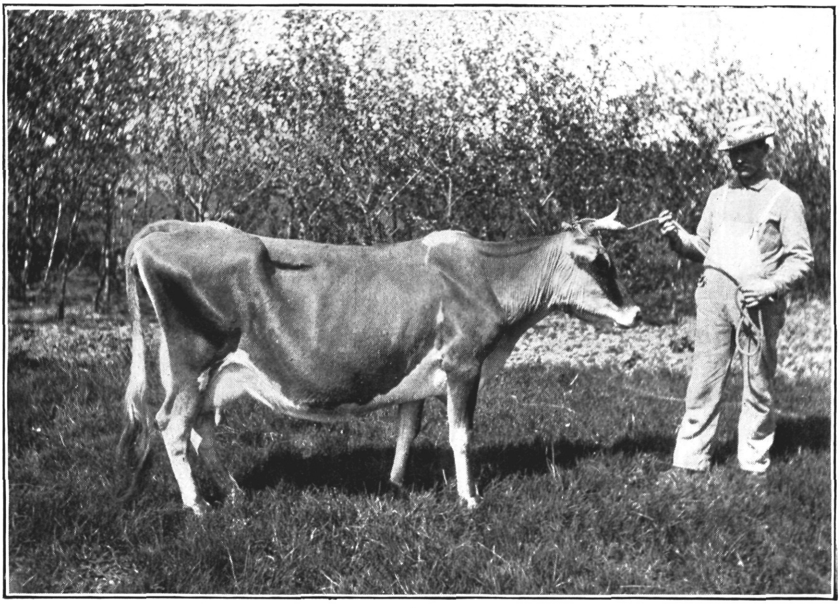


FIG. 2.—EVA. GRADE JERSEY.

Average yield for 4 years 6,122 lbs. milk, 6.45 average per cent of fat, 392.6 lbs. butter fat; best year's record 7,333 lbs. milk, 6.23 average per cent of fat, 456.6 lbs. butter fat.

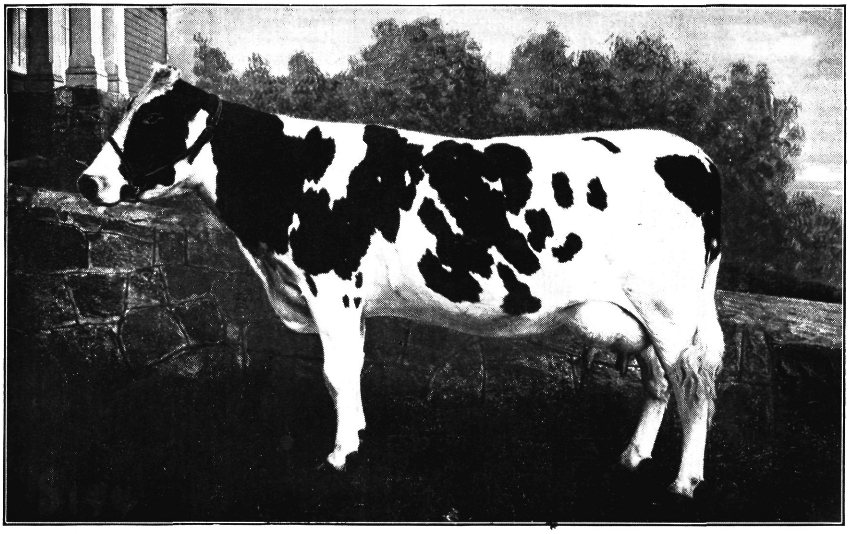


FIG. 1.—DONATION. GRADE HOLSTEIN.

Record for 1 year 10,833.4 lbs. milk, 3.76 per cent fat, 407.62 lbs. butter fat.

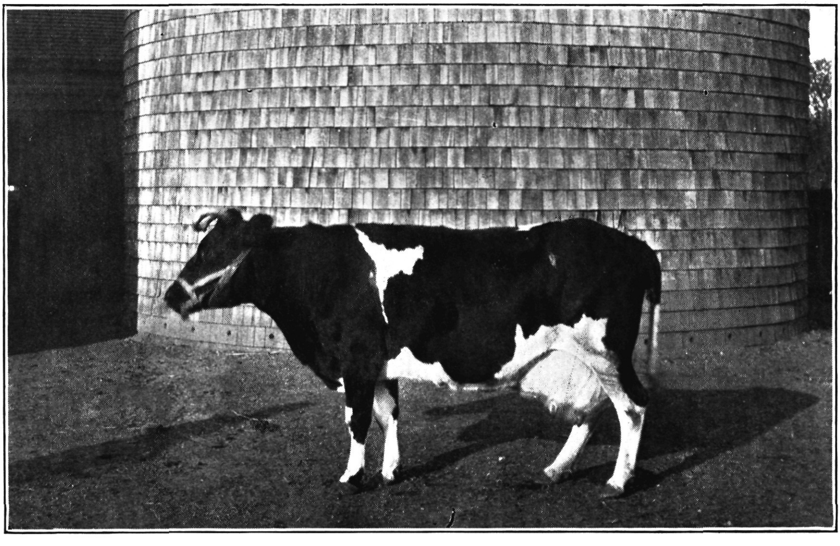


FIG. 2.—QUEEN. GRADE HOLSTEIN.

Best daily record 59 lbs. milk; best weekly record 399 lbs. milk, 13.96 lbs. butter fat; best monthly record 1,582.5 lbs. milk, 63.30 lbs. butter fat; best yearly record 12,000 lbs. milk, 480 lbs. butter fat. Average for 6 years 8,422 lbs. milk, 339.47 lbs. butter fat.

Milk and butter-fat records of single grade cows, not in experiment-station herds, for one year—Continued.

Owner.	State.	Name of cow.	Breed.	Age.	In milk.	Yield of milk.	Average fat in milk.	Yield of butter fat.
				Yrs.		*Pounds.*	*P. ct.*	*Lbs.*
H. D. Griswold	Wis	No. 2	Shorthorn	9	360 days	8,517.0	4.33	368.8
Do	do	No. 3	do	2	360 days	5,240.0	5.75	301.3
Chas. U. Grote	do	Rose	do			10,163.0		
Do	do	Duchess	do			9,627.0		
Do	do	Belle	do			9,283.0		
Do	do	Maud	do			7,789.0		
H. D. Griswold	do	No. 1	do			9,233.0	4.48	413.7
H. D. Hughes	Ill	No. 4	do			8,305.0	3.79	314.8
Do	do	No. 5	do			10,193.0	2.89	294.5
Do	do	No. 6	do			5,625.0	3.36	189.0
Do	do	No. 13	do			7,857.0	3.06	240.4
G. N. K	Min		do			8,000.0	3.87	309.6
———	Wis	Rose	do		360 days	11,131.7	4.7	523.2
———	do	Princess	do		316 days	6,973.2	4.2	292.9
———	do	Pauline	do		360 days	7,999.7	4.10	328.0
Thomas Pierce	do		do			6,470.0	5.0	323.5
Do	do		do			5,131.0	6.0	307.8
Do	do		do			6,526.0	4.8	313.2
Do	do		do			8,721.0	4.0	348.8
Do	do		do			8,723.0	4.2	366.4
Do	do		do			7,918.0	4.3	340.5
———	do	Roaney	do		245 days	6,013.0	3.97	238.0

MILK AND BUTTER-FAT RECORDS OF SINGLE GRADE COWS FOR SERIES OF YEARS.

While records of dairy cows for a full year are valuable, records for series of years are still better. Dairy cows have their off years, and this must be considered when cows having poor records are being dropped from the herd. If this fact is not borne in mind there is danger of selling the best cows. Attention is called to a cow, Sweet Briar, of the Minnesota Experiment Station, that produced for ten years an average of 358.07 pounds of butter a year while in 1898 she produced only 206.06 pounds of butter, in 1899 she made 306.53 pounds and in 1901, 370.53 pounds. If the merits of Sweet Briar had been wholly based on the work she did in 1898 she would possibly have been dropped from the herd. The great value of scales and the Babcock test lies in their continued use in the dairy herd. It sometimes happens that promising heifers do very poorly the first year. In such cases the heifer's individuality, together with her breeding, should be considered before disposing of her, and records for a series of years should be the final test. It may be stated that a good cow seldom has two off years in succession.

Records of Single Grade Cows for Series of Years in Experiment Station Herds.

These records are worthy of careful study. They show the possibilities in production where cows are well fed and managed, and that grade cows may return a liberal profit for seven, eight, and even nine years.

Records of single grade cows for series of years at University of Wisconsin Agricultural Experiment Station.

Name of cow.	Breed.	Year.	Weight of cow.	Days in milk.	Yield of milk.	Fat in milk.	Yield of butter fat.	Value of products.	Cost of feed.	Profit.
			Pounds.		*Pounds.*	*Per ct.*	*Pounds.*			
Bessie	Grade Guernsey	1898	868	294	6,651.1	4.81	320	$82.58	$37.48	$45.10
		1899	847	306	6,565.1	4.74	311	80.47	44.11	36.36
		1900	894	329	7,977.7	4.44	354	92.17	38.69	53.48
		1901	987	327	7,021.3	4.68	329	85.21	35.22	49.99
		1902	922	371	7,333.0	4.28	314	85.55	34.04	51.51
Average			903	325	7,109.6	4.53	322	65.19	37.90	47.29
Ella	Grade Guernsey	1898	934	343	6,959.0	4.99	347	89.35	36.90	52.45
		1899	1,028	317	6,765.8	5.10	345	88.71	35.49	53.22
		1900	1,009	334	6,628.5	4.94	327	84.35	40.17	44.18
		1901	1,037	329	7,162.8	4.92	352	90.79	34.57	56.22
Average			1,002	331	6,879.0	4.98	342	88.30	36.78	51.52
Donation	Grade Holstein	1901	1,186	348	10,426.5	3.69	385	102.31	45.53	56.78
		1902	1,281	318	9,158.1	3.50	321	85.78	34.78	51.00
		1903	1,316	317	9,857.1	3.61	357	94.96	36.19	58.77
Average			1,261	327	9,813.9	3.61	354	94.35	38.80	55.51
Hoard	Grade Jersey	1899	778	325	5,942.0	5.40	321	81.92	37.03	44.89
		1900	787	352	6,208.2	5.16	320	82.04	35.98	46.06
		1901	826	304	5,211.5	5.63	293	74.64	33.53	41.11
Average			797	327	5,753.9	5.41	311	79.53	35.51	44.02
Non	Grade Jersey	1899	780	322	5,817.0	5.11	297	76.77	38.22	38.55
		1900	760	366	7,573.4	4.96	376	96.87	37.92	58.95
		1901	814	270	6,838.6	4.61	315	81.80	38.98	42.82
Average			785	319	6,743.0	4.88	329	85.15	38.37	46.78
Reba	Grade Jersey	1899	682	340	4,416.9	5.62	248	63.29	31.62	31.67
		1900	800	290	4,759.4	5.04	240	61.70	31.24	30.46
		1901	892	294	5,485.1	5.20	285	73.17	35.53	37.64
		1902	878	247	5,728.0	5.14	294	77.19	28.02	49.17
		1903	915	325	5,730.9	5.29	303	77.61	33.07	44.54
Average			833	299	5,224.0	5.25	274	70.59	31.89	38.69
Lady	Grade Red Poll	1901	1,158	320	9,534.4	4.03	384	101.03	49.99	51.04
		1902	1,193	324	11,025.1	4.07	449	118.03	55.67	62.36
		1903	1,192	322	11,632.6	4.24	493	128.99	51.31	77.68
Average			1,181	322	10,730.7	4.12	442	116.01	52.32	67.02
Duchess	Grade Shorthorn	1898	1,361	325	6,550.0	4.06	266	69.86	41.36	28.59
		1899	1,332	310	6,801.2	4.47	304	79.16	41.97	37.19
		1900	1,364	292	5,376.0	4.04	217	57.05	41.43	15.62
Average			1,352	309	6,242.4	4.20	262	68.69	41.59	27.10
Belle	Grade Shorthorn	1898	1,210	337	7,872.2	4.14	326	85.43	42.73	42.70
		1899	1,306	285	6,010.8	4.22	254	66.40	38.85	27.55
		1900	1,298	289	6,076.8	3.77	229	60.69	38.00	22.69
		1901	1,395	355	6,682.9	3.71	248	65.81	38.25	27.56
Average			1,302	317	6,660.6	3.89	259	69.58	39.45	30.13
Maud	Grade Shorthorn	1898	1,176	338	6,997.5	4.29	300	78.39	40.50	37.89
		1899	1,118	336	7,960.2	4.17	332	86.94	40.72	46.22
		1900	1,132	304	8,695.4	3.99	347	91.02	48.15	47.87
		1901	1,164	334	10,782.1	3.76	405	107.33	42.80	64.53
		1902	1,175	291	9,694.0	3.80	368	97.43	33.98	46.45
Average			1,153	320	8,825.4	3.97	350	92.22	40.23	52.00
Pauline	Grade Shorthorn	1898	1,370	343	5,138.8	4.18	215	56.36	35.76	20.60
		1899	1,301	308	5,396.7	4.16	225	58.82	30.66	28.16
		1900	1,247	355	9,128.2	4.00	365	96.15	43.63	52.52
		1901	1,364	327	7,903.2	3.91	309	81.68	35.71	45.97
		1902	1,331	324	9,682.9	3.80	368	97.42	35.57	61.85
Average			1,322	331	7,449.9	3.98	296	78.08	36.26	41.62

Records of grade cows for series of years at Cornell University Agricultural Experiment Station, New York.

Name of cow.	Breed.	Age.	Date of calving.	Number of lactation.	Weeks in lactation.	Total yield of milk.	Fat in milk.	Total butter fat.
		Yrs.				*Pounds.*	*Per ct.*	*Pounds.*
Ruby	¾ Holstein	3	Sept., 1891	2	53	9,174.50	3.49	320.23
		4	Nov., 1892	3	57	9,968.25	3.44	342.84
		5	Feb., 1894	4	40	11,086.00	3.49	386.50
		6	Jan., 1895	5	38	10,781.50	3.42	369.01
		7	Dec., 1895	6	48	13,574.00	3.17	430.15
		8	Dec., 1896	7	64	16,089.50	3.24	521.32
Average						11,778.95	3.35	395.01
Freddie	¾ Holstein	6	Oct., 1891	5	41	10,705.25	3.70	396.26
		7	Sept., 1892	6	42	9,906.50	3.72	368.55
		8	Aug., 1893	7	45	11,692.25	3.52	412.22
		9	Aug., 1894	8	38	10,913.75	3.41	371.84
Average						10,804.44	3.57	387.22
May 2d	⅞ Holstein	2	Sept., 1894	1	41	5,815.25	3.17	184.35
		3	Sept., 1895	2	47	6,249.00	2.92	182.68
		4	Sept., 1896	3	41	7,686.00	3.32	254.98
		5	Sept., 1897	4	58	10,273.75	3.11	319.28
Average						7,506.00	3.14	235.32
Belva	⅞ Holstein	5	Oct., 1891	4	42	9,921.25	3.07	304.72
		6	Sept., 1892	5	46	9,720.50	3.21	312.05
		7	Oct., 1893	6	40	9,703.25	3.01	779.41
		8	Sept., 1894	7	34	8,313.75	3.23	268.43
Average						9,289.69	3.13	291.15
Julia	⅞ Holstein	2	Sept., 1893	1	45	7,144.50	3.29	234.86
		3	Oct., 1894	2	40	7,599.50	3.51	262.51
		4	Oct., 1895	3	40	9,855.75	3.31	326.56
		5	Sept., 1896	4	47	7,715.00	2.91	224.28
		6	Oct., 1897	5	40	8,507.50	3.30	280.87
Average						8,164.45	3.26	265.82
Pearl	⅞ Holstein	3	Sept., 1891	2	44	9,105.25	3.36	305.76
		4	Sept., 1892	3	41	8,963.25	3.33	298.86
		5	Sept., 1893	4	43	10,142.00	3.53	357.79
		6	Aug., 1894	5	75	13,619.50	3.29	448.47
		8	May, 1896	6	40	10,764.75	3.26	351.32
Average						10,518.95	3.35	352.44
Pet	⅞ Holstein	7	Mar., 1892	4	41	9,647.50	3.34	322.55
		8	Apr., 1893	5	47	10,208.25	3.38	344.80
		9	Apr., 1894	6	43	11,482.50	3.58	410.64
		10	June, 1895	7	15	4,595.00	3.14	144.51
Average						8,984.31	3.40	305.62
Roxy	⅞ Holstein	2	Nov., 1892	1	42	6,374.25	3.66	233.53
		3	Oct., 1893	2	45	3,619.00	3.37	121.78
		5	Jan., 1895	3	17	3,557.50	3.93	139.74
Average						4,516.92	3.65	165.02
Belva 2d	15/16 Holstein	2	Sept., 1895	1	44	6,272.00	3.29	206.45
		3	Sept., 1896	2	42	8,300.25	3.16	262.17
		4	Sept., 1897	3	48	8,746.50	3.22	281.79
Average						7,772.92	3.22	250.14
Mabel	15/16 Holstein	2	Sept., 1892	1	46	7,347.00	3.24	238.38
		3	July, 1893	2	62	6,938.50	3.45	239.30
		4	Jan., 1895	3	35	7,984.25	3.86	307.86
Average						7,423.25	3.53	261.85
Mollie	15/16 Holstein	2	Sept., 1891	1	41	7,203.50	3.31	238.49
		3	Sept., 1892	2	42	8,132.75	3.50	284.41
		4	Sept., 1893	3	51	10,204.50	3.51	358.36
		5	Oct., 1894	4	40	9,948.50	3.55	352.85
		6	Sept., 1895	5	52	11,115.00	3.19	354.76
Average						9,320.85	3.41	317.77

Records of grade cows for series of years at Cornell University Agricultural Experiment Station, New York—Continued.

Name of cow.	Breed.	Age.	Date of calving.	Number of lactation.	Weeks in lactation.	Total yield of milk.	Fat in milk.	Total butter fat.
		Yrs.				*Pounds.*	*Per ct.*	*Pounds.*
Dora	$\frac{15}{16}$ Holstein	2	Aug., 1893	1	45	9,325.75	3.15	293.96
		3	Aug., 1894	2	43	9,450.50	3.14	297.20
		4	Sept., 1895	3	53	9,681.00	2.93	283.93
		5	Nov., 1896	4	47	11,905.00	3.00	356.73
		6	Dec., 1897	5	43	10,926.75	3.03	331.38
Average						10,257.80	3.05	312.64
Emma	$\frac{15}{16}$ Holstein	2	Feb., 1893	1	52	8,421.50	3.17	267.33
		3	May, 1894	2	59	10,828.50	3.36	364.00
		4	Aug., 1895	3	42	9,396.75	2.93	275.02
		5	Sept., 1896	4	42	10,258.00	3.01	308.79
		6	Aug., 1897	5	46	9,500.00	2.98	283.51
Average						9,680.95	3.10	299.73
Sadie	$\frac{15}{16}$ Holstein	2	Mar., 1894	1	42	6,441.75	3.51	226.12
		3	Mar., 1895	2	49	8,305.50	3.49	289.46
		4	May, 1896	3	50	8,650.75	3.26	282.07
		5	June, 1897	4	30	5,006.75	3.45	172.97
Average						7,101.18	3.42	242.65
Gazelle	Grade Jersey	4	Feb., 1892	2	35	4,641.50	5.03	233.32
		5	Dec., 1892	3	38	5,123.25	5.17	265.02
		6	Oct., 1893	4	39	5,781.50	5.11	295.71
		7	Sept., 1894	5	39	4,951.50	5.14	254.71
		8	Aug., 1895	6	18	2,859.25	4.61	131.71
Average						4,671.40	5.05	236.09
Jennie 2d	Jersey-Holstein	2	Nov., 1895	1	41	4,746.75	4.28	203.01
		3	Nov., 1896	2	38	5,759.50	4.26	245.44
		4	Oct., 1897	3	56	7,161.50	4.32	309.51
Average						5,889.25	4.29	252.65
Beauty	Grade Jersey	(?)	Jan., 1892	5?	35	6,192.00	4.87	301.74
			Nov., 1892	......	39	6,176.25	4.82	297.59
			Sept., 1893	......	41	6,474.25	4.61	298.70
			Sept., 1894	......	41	6,300.00	4.47	281.70
			Sept., 1895	......	24	4,416.00	4.46	196.91
Average						5,911.70	4.66	275.33
Bertha	Grade Jersey	3	Sept., 1891	2	42	4,371.50	5.02	219.47
		4	Oct., 1892	3	45	5,990.75	4.94	295.95
		5	Sept., 1893	4	42	5,920.50	4.94	292.28
		6	Sept., 1894	5	44	6,250.00	4.83	301.62
		7	Aug., 1895	6	59	8,595.75	4.84	415.96
Average						6,225.70	4.90	305.06
Cherry	Grade Jersey	2	Sept., 1895	1	46	4,085.50	5.45	222.46
		3	Sept., 1896	2	48	5,442.25	5.37	292.40
		4	Oct., 1897	3	49	6,299.50	5.33	335.87
Average						5,275.25	5.38	283.58
Clara	Grade Jersey	2	Oct., 1894	1	37	3,547.00	5.28	187.31
		3	Sept., 1895	2	43	4,405.50	5.08	223.67
		4	Sept., 1896	3	30	3,893.00	4.99	194.08
Average						3,948.50	5.11	201.69
Cora	Grade Jersey	(?)	Jan., 1892	7?	38	5,914.00	5.29	312.88
			Dec., 1892	......	34	5,827.75	4.95	288.36
			Dec., 1893	......	17	3,732.00	4.98	185.98
Average						5,157.92	5.67	292.61
Daisy	Grade Jersey	2	Sept., 1891	1	41	2,203.00	5.91	130.13
		3	Sept., 1892	2	46	3,433.00	5.60	192.32
		4	Sept., 1893	3	38	2,669.5	5.63	150.21
		5	Sept., 1894	4	41	3,698.25	5.56	205.50
		6	Sept., 1895	5	8	876.25	5.17	45.26
Average						2,576.00	5.62	144.68

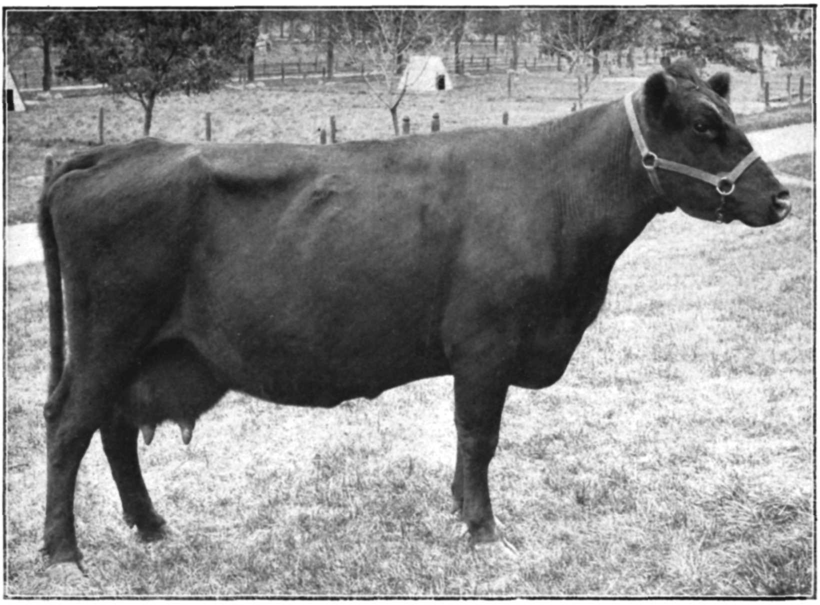


FIG. 1.—LADY. GRADE RED POLLED.

Record for the year ended October 14, 1903, 13,403.7 lbs. milk, 549.1 lbs. butter fat equal to 640.6 lbs. butter. The net profit returned by her for this period was $88.49. She was placed on an official test by the Illinois experiment station on January 9, 1904. Thirteen days after calving and during the following 7 days she produced 406.1 lbs. milk, 17.566 lbs. fat. The best day's record for fat was 2.69 lbs.

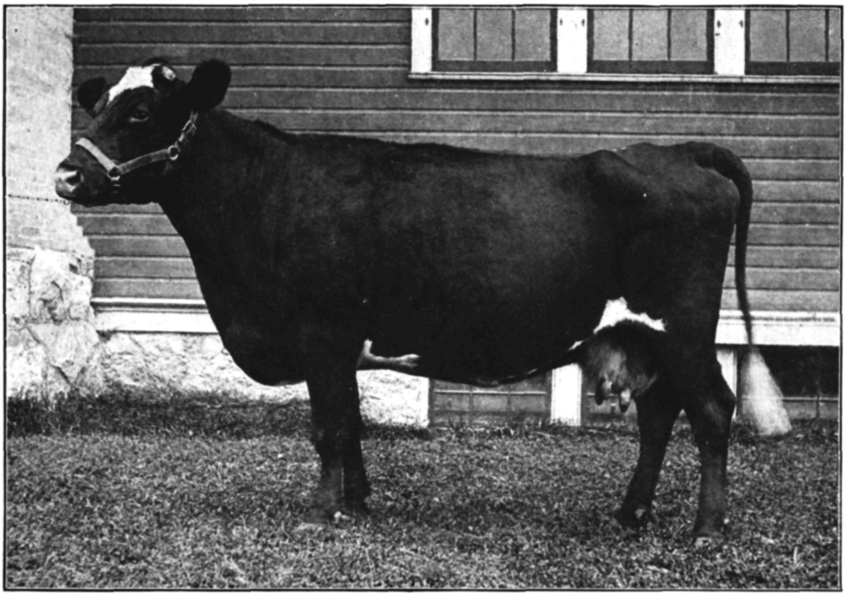


FIG. 2.—DUCHESS. GRADE SHORTHORN.

Year's record 9,527.9 lbs. milk, 3.96 per cent fat, 377.01 lbs. butter fat equal to 441 lbs. butter.

Butter-fat records of single grade cows for series of years at Storrs Agricultural Experiment Station, Connecticut.

No. of cow.	Breed.	Yield of butter fat— 1897.	1898.	1899.	1900.	1901.	1902.	1903.	Average yield of butter fat.	Greatest variation below average yield, butter fat.
		Lbs.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*
7	Grade Guernsey	238	288	247	296	297	253		266	28
8	Grade Holstein	292	268	268	312	266			281	15
29	do				356	303	369	357	346	43
5	Grade Jersey		255	315	298	326	340		308	53
24	do				341	277	279	274	292	18
26	do				381	323	366	344	353	30
27	do				377	440	429	444	422	45
39	do					337	361	301	335	34
41	do					267	281	343	397	30
25	Native				330	281	278		296	18

Records of single grade cows for series of years at Agricultural Experiment Station of Utah.

No. of cow.	Breed.	Year.	Age.	In milk.	Milk yield.	Butter fat in milk.	Yield of butter fat.	Total cost of food.
				Days.	*Pounds.*	*Per cent.*	*Pounds.*	
6	Grade Devon	1894–95	7	329	4,196	3.72	156.0	$20.07
		1895–96	8	316	3,699	3.87	143.0	19.53
		1896–97	9	347	3,899	3.79	147.7	18.37
		1897–98	10	169	2,886	3.49	100.8	[a] 9.90
	Average			290	3,670	3.73	136.9	16.97
9	Grade Devon	1894–95	5	365	6,367	4.27	271.9	19.71
		1895–96	6	335	6,176	4.18	258.3	22.79
		1896–97	7	305	5,308	4.72	250.3	23.10
		1897–98	8	345	5,974	4.48	267.5	20.89
		1898–99	9	261	4,135	4.49	185.8	16.71
	Average			322	5,592	4.41	246.7	20.64
8	Grade Shorthorn	1894–95	6	365	7,156	4.23	303.0	24.89
		1895–96	7	339	7,373	4.46	328.6	26.22
		1896–97	8	339	7,168	4.38	314.3	22.54
		1897–98	9	331	7,431	4.20	312.2	24.85
		1898–99	10	333	4,418	4.73	208.8	22.29
	Average			341	6,709	4.37	293.4	24.16
13	Grade Shorthorn	1894–95	6	365	6,720	4.17	280.2	26.71
		1895–96	7	330	5,389	4.11	221.7	20.05
		1896–97	8	335	6,415	4.13	265.2	20.33
		1897–98	9	303	5,311	4.03	214.3	19.37
		1898–99	10	365	8,859	4.11	363.7	22.70
	Average			340	6,539	4.11	269.0	21.83
10	Grade Shorthorn	1894–95	5	365	5,479	4.08	223.7	15.82
		1895–96	6	327	5,192	4.07	211.3	22.63
		1896–97	7	128	2,802	4.35	121.9	[b] 9.89
	Average			273	4,491	4.13	185.6	16.11
11	Grade	1894–95	7	342	5,272	4.05	213.5	18.74
		1895–96	8	334	5,572	4.24	236.1	21.96
		1896–97	9	346	5,638	4.17	234.9	21.83
		1897–98	10	300	4,183	4.1	171.5	16.82
		1898–99	11	336	7,179	4.14	297.5	21.02
	Average			332	5,569	4.14	230.7	20.07
2	Grade	1894–95	10	277	5,820	3.75	218.1	17.80
		1895–96	11	328	5,816	4.03	234.4	24.69
		1896–97	12	214	3,993	4.01	160.3	[b] 8.33
	Average			273	5,210	3.92	204.3	
7	Grade	1894–95	7	315	5,425	4.20	227.7	25.00
		1895–96	8	345	5,922	4.33	256.6	20.91
		1896–97	9	323	4,498	4.35	195.4	21.47
	Average			328	5,282	4.29	226.6	22.46

[a] For six months.

[b] For seven months.

Records of single grade cows for series of years at New Jersey Agricultural Experiment Station.

Name of cow.	Breed.	Year.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Pounds.	*Per cent.*	*Pounds.*
Raritan	Grade Guernsey	1899	7,553.7	4.5	342.56
		1900	7,687.1	4.6	355.85
		1901	6,267.2	4.6	288.62
		1902	6,287.8	4.1	258.53
		1903	5,930.8	4.3	249.36
Average			6,745.3	4.43	298.98
Pearl	Grade Holstein	1901	8,014.0	4.2	332.70
		1902	6,939.3	4.43	307.55
		1903	7,282.1	4.2	303.22
Average			7,411.8	4.24	314.49
Zola	Grade Holstein	1901	6,818.1	4.3	294.75
		1902	7,061.4	4.03	284.43
		1903	6,976.8	4.1	276.58
Average			6,952.1	4.10	285.25
Blue	Grade Holstein	1901	6,496.7	4.5	292.85
		1902	7,072.5	4.37	309.42
		1903	7,840.1	4.5	355.68
Average			7,136.4	4.47	319.32
Woodlawn	Grade Holstein	1897	7,805.4	3.8	296.6
		1898	7,438.5	4.0	304.4
		1899	5,266.7	4.1	215.9
		1900	9,511.5	4.1	387.9
		1901	8,300.7	3.9	321.7
		1902	6,586.0	3.86	254.2
Average			7,484.8	3.97	296.8
Victoria	Grade Holstein	1899	8,933.5	3.3	297.20
		1900	8,429.9	3.5	298.37
Average			8,681.7	3.42	297.78
Queen	Grade Holstein	1899	10,169.7	4.1	415.11
		1900	9,164.1	4.1	372.64
		1901	8,444.1	3.9	331.20
		1902	8,857.1	4.07	360.22
		1903	6,275.0	4.1	257.01
		1904	7,622.1	3.94	300.63
Average			8,422.0	4.03	339.47
Luella	Grade Holstein	1900	6,798.2	4.8	324.94
		1901	5,852.3	4.7	272.14
		1902	6,332.4	4.66	294.92
Average			6,327.6	4.69	297.33
Sebolt	Grade Jersey	1897	7,312.3	4.8	351.0
		1898	5,226.2	4.8	250.9
		1899	7,523.5	4.6	346.1
		1900	8,140.2	4.6	377.0
		1901	6,660.5	4.5	298.7
		1902	6,067.9	4.61	279.7
Average			6,821.8	4.64	317.2
Gipsy	Grade Jersey	1899	7,874.8	4.4	344.3
		1900	7,001.1	4.4	305.9
		1901	7,360.0	4.1	305.08
		1902	6,490.9	4.13	267.92
		1903	6,729.0	4.0	269.21
Average			7,091.2	4.20	298.48
Genesta	Grade Jersey	1900	4,803.8	4.7	225.11
		1901	5,189.5	4.4	229.12
		1902	5,782.5	4.19	242.13
		1903	6,042.8	4.0	262.24
Average			5,454.6	4.39	239.65

Records of single grade cows for series of years at New Jersey Agricultural Experiment Station—Continued.

Name of cow.	Breed.	Year.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Pounds.	*Per cent.*	*Pounds.*
Model	Grade Jersey	1897	8,302.9	4.0	332.0
		1898	7,424.4	4.1	304.4
		1899	6,695.3	4.1	274.5
		1900	7,694.9	4.3	328.7
		1901	8,351.7	4.2	348.7
		1902	7,982.5	4.5	361.3
		1903	6,685.1	4.1	275.7
Average			7,591.0	4.18	317.9
Two	Grade Shorthorn	1897	5,677.3	4.6	261.2
		1898	6,160.6	4.8	295.7
		1899	5,598.3	4.7	263.1
		1900	6,699.7	4.8	321.4
Average			6,034.0	4.72	285.3
Select	Grade Shorthorn	1899	6,606.6	4.2	278.35
		1900	8,907.4	4.2	377.49
		1901	7,063.8	4.3	302.10
		1902	8,804.6	4.36	383.90
		1903	7,209.2	4.1	295.56
Average			7,718.3	4.24	327.48

Records of single grade cows for series of years at Vermont Agricultural Experiment Station.

Name of cow.	Breed.	Year.	Age.	Days in milk.	Yield of milk.	Fat in milk.	Total solids in milk.	Yield of butter fat.	Total cost of food.	Proceeds from butter.	Value of fertilizing ingredients.[a]
			Yrs.		*Lbs.*	*P. ct.*	*Per. ct.*	*Lbs.*			
Hallowe'en	Grade Jersey	1900-1901	7	358	6,750	5.26	14.69	355.1	$51.01	$105.51	$30.92
		1901-2	8	321	5,122	5.27	14.69	270.1	49.71	87.44	28.17
		1902-3	9	365	4,076	5.65	15.08	230.3	58.99	80.60	34.79
Average				338	5,316	5.37	......	285.2	53.24	91.18	......
Idarella	Grade Jersey	1895-96	5	366	5,728	5.32	14.70	305.0	43.72	81.82	19.59
		1896-97	6	326	6,740	5.10	14.50	343.8	48.04	97.26	22.28
		1897-98	7	327	6,410	5.05	14.28	323.8	52.72	97.30	25.94
		1898-99	8	317	6,068	5.01	14.06	303.9	48.58	92.20	24.20
		1899-1900	9	365	6,105	5.57	14.85	340.3	56.55	108.19	34.09
		1900-1901	10	281	3,758	4.91	14.02	184.4	46.41	59.18	27.34
		1901-2	11	292	3,247	4.81	13.87	156.1	47.42	50.53	29.08
Average				315	5,437	5.14	......	279.6	49.06	83.78	......
Inez	Grade Jersey	1898-99	6	314	4,155	6.09	15.65	253.1	47.63	76.78	25.59
		1899-1900	7	349	6,804	5.76	15.22	392.2	52.36	124.60	29.67
		1900-1901	8	329	5,730	5.72	14.43	327.5	50.28	105.10	30.95
		1901-2	9	307	5,150	5.45	14.92	280.8	48.55	90.91	29.98
		1902-3	10	334	5,642	5.54	14.92	312.4	48.10	109.33	26.98
Average				326	5,496	5.70	......	313.2	49.38	101.34	......
Jeannie	Grade Jersey	1894-95	5	300	3,083	5.23	14.58	161.1	43.39	44.04	......
		1895-96	6	360	7,461	4.80	13.75	357.8	45.48	96.00	20.16
		1896-97	7	334	6,400	4.99	14.15	319.5	49.33	90.38	24.43
		1897-98	8	338	5,372	4.79	13.69	257.4	47.22	77.34	23.74
Average				333	5,579	4.91	......	274.0	46.36	76.94	......
Jersey Lily	Grade Jersey	1894-95	3	313	5,125	5.72	15.03	293.1	45.36	80.37	......
		1895-96	4	366	5,455	5.81	15.53	316.9	43.16	85.03	20.51
		1896-97	5	338	6,542	5.38	14.86	351.9	50.37	99.54	23.58
		1897-98	6	314	5,630	5.36	14.56	301.9	49.11	90.74	25.20
		1898-99	7	346	3,540	6.08	15.41	215.3	48.08	65.31	23.24
		1899-1900	8	319	5,782	5.63	15.07	325.5	53.53	103.46	31.45
Average				333	5,346	5.63	......	300.8	48.27	87.41	......

[a] Value of fertilizing ingredients of food fed in barn.

Records of single grade cows for series of years at Vermont Agricultural Experiment Station—Continued.

Name of cow.	Breed.	Year.	Age.	Days in milk.	Yield of milk.	Fat in milk.	Total solids in milk.	Yield of butter fat.	Total cost of food.	Proceeds from butter.	Value of fertilizing ingredients.
			Yrs.		*Lbs.*	*P. ct.*	*Per ct.*	*Lbs.*			
Lavender....	Grade Jersey .	1900-1901	3	365	6,227	5.59	15.06	347.9	$55.21	$111.65	$34.08
		1901-2	4	365	5,371	5.88	15.43	315.8	54.17	102.27	34.17
		1902-3	5	271	3,434	5.60	14.96	192.2	47.39	67.26	28.54
Average .				334	5,011	5.69	......	285.3	52.26	93.73	......
Lilac	Grade Jersey .	1898-99	2	282	3,727	4.72	13.97	175.8	31.29	53.32	14.73
		1899-1900	3	312	4,960	4.64	14.11	230.1	46.39	73.13	25.21
		1900-1901	4	321	4,809	4.76	14.27	228.8	49.61	73.42	30.11
Average .				305	4,499	4.70	......	211.6	42.43	66.62	......
Lucerne.....	Grade Jersey .	1900-1901	7	332	5,586	5.92	15.69	330.8	49.21	106.15	27.74
		1901-2	8	283	5,563	5.61	15.37	312.3	53.56	101.13	30.01
		1902-3	9	309	4,680	5.61	15.26	262.4	44.19	91.82	25.73
Average .				308	5,276	5.72	......	301.8	48.99	99.70	......
Maizie.......	Grade Jersey .	1894-95	8	345	6,384	4.76	14.02	303.9	55.81	83.33	......
		1895-96	9	283	3,295	5.05	14.15	166.3	38.80	44.63	17.82
		1896-97	10	347	7,638	4.66	13.84	356.0	49.54	100.70	22.13
		1897-98	11	260	2,887	5.01	14.46	144.7	37.40	43.46	18.26
		1898-99	12	340	7,068	4.28	12.98	302.8	46.24	91.86	26.19
Average .				315	5,454	4.67	......	254.7	45.56	72.80	......
Marjory	Grade Jersey .	1895-96	7	362	5,344	5.36	14.57	286.7	46.60	76.94	21.07
		1896-97	8	298	4,624	5.44	14.92	251.3	42.94	71.10	19.48
		1897-98	9	365	7,697	5.05	13.97	388.8	50.30	116.84	26.87
Average .				342	5,888	5.25	......	308.9	46.61	88.29	......
Maxella	Grade Jersey .	1897-98	6	354	5,521	4.79	13.84	264.4	49.06	79.46	24.35
		1898-99	7	341	7,742	4.58	13.45	355.0	48.02	107.70	24.73
		1899-1900	8	359	7,348	4.99	14.28	366.8	52.02	116.59	30.36
		1900-1901	9	342	7,726	4.73	14.01	365.5	50.84	117.29	28.74
		1901-2	10	308	7,194	4.55	13.77	327.4	48.60	106.00	29.97
		1902-3	11	325	4,129	4.82	14.17	199.1	52.51	69.68	31.29
Average .				338	6,610	4.74	......	313.2	50.17	99.45	......
Eulalie	Grade Jersey .	1894-95	5	324	6,412	4.96	14.57	317.9	48.23	87.16	......
		1895-96	6	333	6,893	4.93	14.31	339.5	48.90	91.10	22.88
		1896-97	7	288	5,336	4.72	14.16	252.1	50.63	71.32	23.94
		1897-98	8	271	3,334	5.22	14.38	174.1	42.31	52.32	22.71
		1898-99	9	285	7,187	4.74	13.89	340.7	47.04	103.34	23.57
		[a]1899-1900	10	350	8,510	5.24	14.83	445.5	68.42	141.64	39.80
Average .				308	6,279	4.96	......	311.6	50.92	91.15	......
Eunice	Grade Jersey .	1900-1901	3	327	5,292	5.04	14.70	266.9	40.01	85.66	22.46
		1901-2	4	289	3,499	5.19	14.80	181.6	45.27	58.80	27.61
		1902-3	5	327	6,330	4.79	14.18	303.4	52.81	106.20	30.61
Average .				314	5,040	4.97	......	250.6	46.03	83.55	......
Eva	Grade Jersey .	1898-99	6	318	6,181	6.46	16.15	399.3	52.88	121.11	29.02
		1899-1900	7	308	5,030	7.27	17.54	365.9	50.62	116.32	28.12
		1900-1901	8	359	7,333	6.23	15.99	456.6	55.65	146.51	31.58
		1901-2	9	312	5,938	5.82	15.47	345.6	46.30	111.88	28.07
		1902-3	10	333	4,324	6.41	16.34	277.2	48.62	97.02	29.96
Average .				326	5,761	6.40	......	368.9	50.81	118.57	......
Fairie	Grade Jersey .	1894-95	5	330	5,585	5.19	14.44	289.9	46.04	78.30	......
		1895-96	6	366	4,882	5.92	15.29	288.8	41.13	77.50	18.09
		1896-97	7	344	7,556	5.21	14.63	393.3	49.33	111.28	23.15
		1897-98	8	325	6,207	5.01	14.09	311.0	45.03	93.44	22.37
		1898-99	9	325	6,430	4.90	13.86	315.1	45.84	95.58	22.42
		1899-1900	10	316	5,719	4.98	14.34	285.0	49.51	90.60	25.63
		1900-1901	11	330	6,347	4.76	13.98	302.1	47.37	96.94	28.40
		1901-2	12	315	4,585	5.20	14.73	238.4	49.33	77.20	30.49
Average .				331	5,915	5.12	......	302.9	46.70	90.11	......

[a] Farrow.

Records of single grade cows for series of years at Vermont Agricultural Experiment Station—Continued.

Name of cow.	Breed.	Year.	Age.	Days in milk.	Yield of milk.	Fat in milk.	Total solids in milk.	Yield of butter fat.	Total cost of food.	Proceeds from butter.	Value of fertilizing ingredients.
			Yrs.		*Lbs.*	*P. ct.*	*Per ct.*	*Lbs.*			
Flora	Grade Jersey	1894–95	5	269	3,960	5.72	14.49	226.3	$43.76	$62.04	......
		1895–96	6	283	3,721	5.05	14.09	188.0	40.48	50.46	$17.96
		1896–97	7	330	6,988	4.90	14.11	342.3	45.77	96.82	20.83
		1897–98	8	354	8,045	4.80	13.79	385.8	49.73	115.95	26.11
		1898–99	9	266	7,385	4.27	13.05	315.6	45.26	95.74	23.51
		1899–1900	10	278	7,521	4.49	13.22	337.7	48.97	107.37	28.04
		1900–1901	11	291	6,567	4.55	13.45	298.7	47.31	95.86	27.85
		1901–2	12	274	4,973	4.91	14.17	244.3	44.86	79.09	27.67
		1902–3	13	268	4,022	4.86	13.97	195.2	39.45	68.31	23.25
Average	......	......	......	290	5,909	4.76	......	281.5	45.07	85.74	......
Flox	Grade Jersey	1895–96	5	366	5,973	4.97	14.25	296.8	46.45	79.64	26.14
		1896–97	6	260	3,430	5.05	14.70	173.2	40.28	49.02	17.67
		1897–98	7	335	6,427	4.13	12.89	265.5	49.60	79.80	24.02
Average	......	......	......	320	5,277	4.65	......	245.2	45.44	69.49	......
Golden Rod	Grade Jersey	1894–95	3	365	5,327	6.67	16.40	355.3	54.30	97.41	......
		1895–96	4	308	5,399	6.21	15.80	335.1	46.62	89.92	23.70
		1896–97	5	326	5,886	6.27	15.85	368.8	49.09	104.34	22.65
		1897–98	6	292	5,372	5.96	15.40	320.1	48.74	96.20	25.00
		1898–99	7	298	5,379	6.19	15.59	333.0	47.99	101.02	23.80
		1899–1900	8	286	4,556	6.75	16.60	307.5	54.93	97.74	29.43
		1900–1901	9	306	4,901	6.28	16.09	307.8	54.46	98.78	33.31
		1901–2	10	323	4,482	6.45	16.31	289.3	52.32	93.64	30.40
		1902–3	11	329	4,413	6.71	16.90	296.3	61.21	103.70	37.11
Average (9 years).	......	......	......	315	5,090	6.36	......	323.7	52.18	98.08	......
Goldie	Grade Jersey	1894–95	8	354	5,443	5.60	15.13	305.0	52.85	83.61	......
		1895–96	9	310	4,375	5.38	14.88	235.2	47.28	63.13	18.99
		[a] 1896–97	10	365	6,229	5.45	15.12	339.5	51.30	96.05	23.44
		1897–98	11	350	5,416	5.53	15.33	299.3	51.30	89.94	26.14
Average	......	......	......	345	5,366	5.49	......	294.8	50.68	83.18	......
Haidee	Grade Jersey	1898–99	2	335	4,573	6.11	15.77	279.2	46.62	84.72	25.73
		1899–1900	3	365	6,535	5.91	15.58	386.4	54.54	122.84	31.06
		1900–1901	4	297	6,157	5.34	14.74	328.9	51.01	105.51	30.92
		1901–2	5	304	6,016	5.33	14.91	320.9	50.81	103.89	30.84
		1902–3	6	303	5,498	5.34	14.92	293.4	57.41	102.68	34.48
Average	......	......	......	335	5,776	5.57	......	321.8	52.08	103.93	......
Bess	Grade Jersey	1894–95	8	365	7,717	5.13	14.13	396.2	56.29	108.62	......
		1895–96	9	277	6,387	5.45	14.71	348.0	44.89	93.37	22.04
		1896–97	10	362	6,415	5.67	14.98	363.9	57.66	102.94	27.14
		1897–98	11	365	5,262	5.69	14.92	299.4	50.82	89.97	24.28
Average	......	......	......	342	6,445	5.46	......	351.9	52.42	98.73	......
Betty	Grade Jersey	1894–95	6	303	5,052	4.76	13.50	240.5	48.31	65.94	......
		1895–96	7	366	6,502	5.21	14.07	339.0	44.30	90.96	22.25
		[b] 1896–97	8	356	4,241	4.95	14.26	209.9	48.32	59.38	24.63
		1897–98	9	261	6,820	4.36	13.11	297.6	44.36	89.42	21.33
		1898–99	10	341	5,894	4.67	13.69	275.1	53.40	83.46	27.82
Average	......	......	......	325	5,702	4.78	......	272.5	47.76	77.83	......
Brownie	Grade Jersey	1894–95	5	326	4,886	5.81	15.38	284.0	52.37	77.86	......
		1895–96	6	355	7,357	5.34	14.61	393.0	43.95	105.43	20.47
		1896–97	7	294	6,137	4.98	13.95	305.6	45.46	86.45	22.39
		1897–98	8	339	4,863	5.16	14.51	250.8	47.48	75.36	23.61
Average	......	......	......	328	5,811	5.31	......	308.3	47.32	86.28	......
Buttercup	Grade Jersey	1899–1900	3	365	4,493	6.28	16.11	282.0	51.61	89.65	29.35
		1900–1901	4	316	5,733	5.79	15.60	331.9	52.58	106.50	30.27
		1901–2	5	365	4,515	6.77	17.10	305.5	58.40	98.90	35.20
Average	......	......	......	349	4,914	6.24	......	306.5	54.20	98.35	......

[a] Farrow

[b] Aborted.

Records of single grade cows for series of years at Vermont Agricultural Experiment Station—Continued.

Name of cow.	Breed.	Year.	Age.	Days in milk.	Yield of milk.	Fat in milk.	Total solids in milk.	Yield of butter fat.	Total cost of food.	Proceeds from butter.	Value of fertilizing ingredients.
			Yrs.		*Lbs.*	*P. ct.*	*Per ct.*	*Lbs.*			
Ceres........	Grade Jersey .	[a] 1897-98	7	365	6,389	5.86	15.16	374.5	$48.35	$112.54	$25.33
		1898-99	8	262	4,487	5.73	15.01	256.9	40.77	77.92	19.47
		1899-1900	9	305	6,845	5.78	15.25	395.7	54.03	125.78	31.72
		1900-1901	10	344	8,343	5.22	14.55	435.9	53.01	139.85	32.63
		1901-2	11	296	6,958	5.15	14.52	358.5	52.53	116.07	32.20
		1902-3	12	314	5,888	5.24	14.67	308.5	51.33	107.97	30.34
Average .	....	....	.....	314	6,485	5.47	....	355.0	50.00	113.35	....
Clare........	Grade Jersey .	1897-98	10	365	5,259	5.25	14.83	276.0	51.48	82.94	25.26
		1898-99	11	287	7,462	4.71	13.57	351.4	48.25	106.60	24.18
		1899-1900	12	310	5,062	5.08	14.41	257.0	56.54	81.70	32.78
		1900-1901	13	304	4,542	5.04	14.52	228.8	47.12	73.42	29.17
		1901-2	14	365	7,074	4.80	13.98	339.8	56.80	110.03	32.48
Average .	....	....	.....	326	5,878	4.94	....	290.6	52.03	90.94	....
Clover.......	Grade Jersey .	1894-95	7	240	3,702	5.96	15.88	220.7	49.54	60.51	....
		1895-96	8	366	5,768	6.28	16.17	362.4	48.97	97.24	23.53
		1896-97	9	354	4,211	6.19	16.11	260.8	49.54	73.78	24.70
		1897-98	10	358	3,560	6.33	16.01	225.2	48.47	67.66	23.98
		1898-99	11	242	5,167	5.35	14.57	276.5	44.13	83.88	21.86
Average .	....	....	.....	312	4,481	6.01	....	269.1	48.13	76.62	....
Dahlia.......	Grade Jersey .	1899-1900	8	365	6,096	5.72	15.26	348.9	54.91	110.93	32.62
		1900-1901	9	353	3,973	5.72	15.24	227.3	46.72	72.96	28.34
		1901-2	10	328	3,974	5.56	14.94	221.0	42.86	71.57	26.03
		1902-3	11	365	4,349	5.70	15.17	247.8	56.84	86.72	33.76
Average .	....	....	.....	353	4,598	5.68	....	261.3	50.33	85.55	....
Dandelion...	Grade Jersey .	1894-95	5	296	4,522	5.70	15.06	257.7	46.21	70.67	....
		1895-96	6	366	5,546	5.64	14.83	312.6	41.89	83.87	19.97
		1896-97	7	316	6,292	5.47	14.76	344.3	46.67	97.43	21.49
		1897-98	8	328	5,776	5.46	14.56	315.5	48.40	94.80	24.78
		1898-99	9	302	5,110	5.14	14.02	262.5	49.35	79.64	26.32
Average .	....	....	.....	322	5,449	5.48	....	298.5	46.50	85.28	....
Dora.........	Grade Jersey .	1894-95	5	365	5,693	5.56	14.87	316.5	54.61	86.79	....
		[a] 1895-96	6	340	3,613	6.04	15.56	218.1	36.28	58.51	16.78
		1896-97	7	342	5,122	5.43	14.97	278.2	42.01	78.71	18.62
		1897-98	8	365	4,704	5.60	14.96	263.4	46.59	79.14	23.90
Average .	....	....	.....	353	4,783	5.63	....	269.1	44.87	75.79	....
Edith........	Grade Jersey .	1900-1901	3	318	3,915	5.34	14.82	208.9	42.91	67.04	26.42
		1901-2	4	365	5,567	5.37	15.01	298.8	54.40	96.73	34.35
		1902-3	5	323	6,527	4.96	14.10	323.7	54.06	113.27	32.55
Average .	....	....	.....	335	5,336	5.19	....	277.1	50.46	92.35	....
Red Top.....	Grade Jersey .	1894-95	5	296	4,960	4.90	14.03	243.1	55.23	66.65	....
		1895-96	6	300	6,694	4.59	13.52	306.9	46.59	82.36	20.75
		1896-97	7	365	8,967	4.39	13.49	393.9	56.75	111.42	28.57
		1897-98	8	308	6,344	3.97	12.51	252.1	49.85	75.75	25.56
		1898-99	9	324	6,700	4.03	12.70	269.7	48.37	81.82	24.18
		1899-1900	10	283	7,006	3.93	12.58	275.1	53.11	87.45	30.44
		1900-1901	11	289	5,040	4.20	13.03	211.9	49.78	68.01	27.95
Average .	....	....	.....	309	6,520	4.27	....	279.0	51.39	82.07	....
Regina......	Grade Jersey .	1894-95	5	365	5,372	4.27	13.22	229.6	48.03	62.96	....
		[a] 1895-96	6	323	6,572	4.05	12.92	266.1	44.45	71.41	21.88
		1896-97	7	355	5,135	3.84	12.73	197.0	49.19	55.72	23.51
Average .	....	....	.....	348	5,693	4.05	....	230.9	47.22	63.36	....
Rosel........	Grade Jersey .	[a] 1900-1901	4	365	10,525	4.25	12.76	447.6	60.23	143.66	36.28
		1901-2	5	300	5,925	4.96	14.68	293.9	47.34	95.15	27.88
		1902-3	6	327	6,129	4.99	14.48	305.6	57.96	106.93	35.09
Average .	....	....	.....	331	7,526	4.64	....	349.0	55.18	115.15	....

[a] Aborted.

Records of single grade cows for series of years at Vermont Agricultural Experiment Station—Continued.

Name of cow.	Breed.	Year.	Age.	Days in milk.	Yield of milk.	Fat in milk.	Total solids in milk.	Yield of butter fat.	Total cost of food.	Proceeds from butter.	Value of fertilizing ingredients.
			Yrs.		*Lbs.*	*Per ct.*	*Per ct.*	*Lbs.*			
Rosemary	Grade Jersey	1899-1900	5	298	4,644	5.04	14.46	233.9	$45.61	$74.34	$25.48
		1900-1901	6	284	5,260	4.77	14.15	250.7	45.36	80.47	27.02
		1901-2	7	274	5,509	4.55	13.87	250.7	53.69	81.17	30.94
		1902-3	8	256	4,661	4.66	13.96	217.0	49.63	75.96	30.25
Average	....		....	278	5,019	4.74	......	238.1	48.57	77.99	......
Rowena	Grade Jersey	1894-95	3	246	4,022	4.49	13.22	180.7	47.68	49.54	......
		1895-96	4	366	7,048	4.67	13.87	329.0	49.53	88.26	23.61
		1896-97	5	322	6,880	4.49	13.73	308.8	54.85	87.36	25.34
		1897-98	6	328	6,747	4.46	13.55	301.0	44.46	90.46	22.05
		1898-99	7	331	6,440	4.52	13.61	291.1	44.97	88.30	23.33
		[a]1899-1900	8	365	5,912	4.81	14.08	284.1	56.28	90.31	29.47
Average	....	....	....	326	6,175	4.57	......	282.5	49.63	82.37	......
Ruth	Grade Jersey	1897-98	2	334	4,220	4.88	14.49	205.8	45.56	61.84	22.59
		1898-99	3	308	4,298	4.75	14.13	204.1	44.47	61.90	23.07
		1899-1900	4	365	4,886	4.74	14.06	231.5	56.01	73.59	32.99
Average	....	....	....	336	4,468	4.79	......	213.8	48.68	65.78	......
Serena	Grade Jersey	1899-1900	3	365	5,353	5.17	14.72	276.7	52.20	87.96	29.25
		1900-1901	4	329	4,995	4.81	14.27	240.3	44.17	77.11	25.07
		1901-2	5	320	5,488	4.57	13.97	250.6	50.07	81.14	29.14
		1902-3	6	344	6,221	4.77	14.13	297.0	60.29	103.94	35.56
Average	....		....	339	5,514	4.83	......	266.2	51.68	87.54	......
Star Bright	Grade Jersey	1898-99	2	252	3,975	5.56	13.75	221.1	32.32	67.08	16.49
		1899-1900	3	356	5,208	5.74	15.75	299.1	51.88	95.08	31.37
		1900-1901	4	314	6,058	5.51	15.15	333.8	52.78	107.11	31.25
		[b]1901-2	5	316	5,074	5.70	15.08	289.4	49.32	93.70	30.62
		1902-3	6	365	5,156	5.88	15.68	303.2	58.25	106.10	35.30
Average	....	....	....	321	5,094	5.68	......	289.3	48.91	93.81	......
Stella	Grade Jersey	1900-1901	3	363	5,277	4.92	14.45	259.5	50.77	83.27	28.42
		1901-2	4	249	5,385	4.68	14.21	251.9	47.09	81.55	27.34
		1902-3	5	296	5,938	4.70	14.14	279.0	56.24	97.64	32.62
Average	....	....	....	303	5,533	4.76	......	263.5	51.37	87.39	......
Viola	Grade Jersey	1898-99	2	300	3,960	5.18	14.36	205.2	31.72	62.25	13.97
		1899-1900	3	333	4,015	5.43	14.90	217.9	46.12	69.27	24.01
		1900-1901	4	314	4,004	5.29	14.76	211.8	48.05	67.98	27.43
		1901-2	5	302	3,892	5.06	14.40	196.9	48.06	63.74	28.23
Average	....	....	....	312	3,968	5.24	......	208.0	43.49	65.81	......
Adelaide	Grade Jersey	1900-1901	7	333	5,651	5.29	14.80	298.8	50.34	95.90	27.05
		1901-2	8	365	5,241	5.21	14.14	273.1	56.91	88.40	32.35
		1902-3	9	254	5 363	4.88	13.98	261.6	50.75	91.55	30.27
Average	....	....	....	317	5,414	5.13	......	277.8	52.67	91.95	......
Sylvia	Grade Jersey	1898-99	7	300	4,262	5.15	14.63	219.6	46.74	66.61	25.01
		1899-1900	8	304	6,422	4.81	14.21	309.0	54.19	98.24	32.02
		[a]1900-1901	9	365	5,541	4.96	14.80	274.7	57.28	88.16	35.68
		1901-2	10	299	4,494	4.79	14.20	215.3	50.74	69.71	31.60
Average	....	....	....	317	5,179	4.92	......	254.6	52.23	80.68	......
Mermaid	Grade Jersey	1900-1901	5	365	6,604	6.29	16.09	415.2	52.22	133.23	31.74
		1901-1902	6	295	6,483	5.45	14.92	353.4	45.29	114.41	26.95
		1902-1903	7	304	4,571	6.30	16.16	288.2	49.12	100.86	30.04
Average	....	....	....	321	5,886	5.99	......	352.3	48.88	116.17	......
Mona	Grade Jersey	1899-1900	3	329	6,659	5.05	14.40	336.6	53.13	107.01	31.02
		1900-1901	4	343	6,475	5.07	14.53	328.3	52.89	105.35	32.22
		1901-1902	5	365	5,746	5.11	14.51	293.7	59.18	95.10	37.80
		[a]1902-1903	6	290	2,991	5.40	14.79	161.4	49.63	56.49	29.40
Average	....	....	....	332	5,468	5.12	......	280.0	53.71	90.99	......

[a] Farrow.

[b] Aborted.

Records of single grade cows for series of years at Vermont Agricultural Experiment Station—Continued.

Name of cow.	Breed.	Year.	Age.	Days in milk.	Yield of milk.	Fat in milk.	Total solids in milk.	Yield of butter fat.	Total cost of food.	Proceeds from butter.	Value of fertilizing ingredients.
			Yrs.		*Lbs.*	*P. ct.*	*Per ct.*	*Lbs.*			
Naomi	Grade Jersey	1897-98	2	333	5,359	4.58	13.93	245.7	$42.76	$73.82	$20.21
		1898-99	3	291	5,573	4.71	13.94	262.6	45.68	79.67	24.11
		1899-1900	4	324	6,620	4.65	14.17	307.9	52.81	97.89	30.73
		1900-1901	5	329	6,193	4.71	14.20	291.5	47.32	93.55	26.83
		1901-1902	6	310	4,400	4.41	14.01	194.0	47.79	62.82	28.09
Average				317	5,629	4.62		260.3	47.27	81.55	
Orpha	Grade Jersey	1898-99	6	337	6,138	4.56	13.98	279.6	50.29	84.82	25.38
		1899-1900	7	267	3,635	4.37	12.73	159.0	42.90	50.55	25.55
		1900-1901	8	365	7,372	4.71	14.40	347.1	54.44	111.40	33.42
		1901-1902	9	297	5,643	4.19	13.84	236.4	48.07	76.53	29.62
		1902-1903	10	307	5,866	4.24	13.49	248.8	55.80	87.08	32.28
Average				315	5,731	4.44		254.2	50.30	82.08	
Pauline	Grade Jersey	1897-98	2	342	5,515	4.80	14.09	264.8	41.82	79.56	20.49
		1898-99	3	319	5,894	4.67	13.85	275.5	44.74	83.56	22.20
		1899-1900	4	330	6,535	4.79	14.21	312.8	52.40	99.43	31.48
		1900-1901	5	308	6,033	5.03	14.46	303.4	49.81	97.36	29.54
		[a]1901-1902	6	330	4,257	5.35	15.30	227.7	47.43	73.73	28.19
Average				326	5,647	4.90		276.8	47.24	86.73	
Polela	Grade Jersey	1897-98	3	361	4,769	5.81	15.28	277.1	49.62	83.19	26.28
		1898-99	4	292	5,030	5.40	14.70	271.8	45.76	82.46	23.42
		1899-1900	5	212	4,050	5.33	14.66	216.0	40.77	68.68	23.45
		1900-1901	6	157	4,249	5.09	14.64	216.1	37.86	69.36	23.34
Average				256	4,525	5.42		245.3	43.50	75.92	
Pomona	Grade Jersey	1897-98	6	365	6,898	5.54	14.94	382.4	49.63	114.91	16.08
		1898-99	7	288	5,875	5.38	14.38	315.8	45.14	95.82	23.90
		1899-1900	8	349	6,261	5.72	15.28	358.1	53.00	113.86	30.09
		1900-1901	9	325	6,252	5.43	14.78	339.2	49.61	108.85	29.28
		1901-1902	10	323	5,858	5.19	14.54	303.9	47.24	98.40	28.92
		1902-1903	11	325	4,705	5.46	15.11	256.8	48.45	89.87	28.39
Average				329	5,975	5.46		326.0	48.85	103.62	
Pretoria	Grade Jersey	1899-1900	3	365	6,768	4.94	14.43	334.6	54.18	106.39	31.86
		[a]1900-1901	4	360	4,563	5.01	14.53	228.4	49.94	73.29	30.66
		1901-1902	5	351	3,090	4.73	13.92	146.0	41.67	47.25	24.42
Average				359	4,807	4.92		236.3	48.60	75.64	
Primrose	Grade Jersey	1900-1901	8	357	5,259	4.77	14.00	250.7	54.07	80.46	34.03
		1901-1902	9	365	5,200	4.51	13.77	234.4	52.21	75.89	28.84
		1902-1903	10	303	4,584	4.61	13.65	211.5	55.89	74.00	33.59
Average				342	5,014	4.63		232.2	54.06	76.78	
Priscilla	Grade Jersey	1897-98	2	353	3,947	5.90	15.49	232.7	46.80	69.93	23.79
		1898-99	3	311	4,351	5.74	15.26	249.8	42.22	75.77	21.22
		1899-1900	4	348	5,094	5.89	15.54	300.0	55.06	95.38	32.30
Average				337	4,464	5.84		260.8	48.03	80.36	
Pussy Willow	Grade Jersey	1897-98	6	365	4,835	5.74	15.18	277.7	49.99	83.44	26.09
		1898-99	7	291	4,564	5.68	15.06	259.1	45.77	78.60	23.06
		1899-1900	8	311	5,225	5.66	15.19	295.9	43.28	94.07	25.08
Average				322	4,875	5.69		277.6	46.35	85.37	
Rachel	Grade Jersey	1897-98	6	305	4,861	5.86	15.59	285.0	42.34	85.64	21.20
		1898-99	7	326	5,216	6.02	15.47	314.1	44.21	95.29	21.59
		[a]1899-1900	8	342	6,472	5.69	15.33	368.2	48.84	117.07	29.06
Average				324	5,516	5.84		322.4	45.13	99.33	

[a] Farrow.

Records of single grade cows for series of years at Agricultural Experiment Station of Nebraska.

Name of cow.	Breed.	Year.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Pounds.	*Per cent.*	*Pounds.*
Annie	Grade Jersey	1897	6,977.25	4.50	313.39
		1898	6,907.19	4.56	314.64
		1899	5,250.39	4.80	251.85
		1903	7,460.90	2.81	209.86
Average			6,648.94	4.10	272.44
Cora	Grade Jersey	1897	8,073.82	4.36	352.32
		1898	7,302.15	4.29	313.26
		1899	7,099.52	4.17	295.92
		1900	7,088.90	4.21	298.68
		1901	7,319.00	4.39	321.10
		1902	7,044.90	4.40	309.88
Average			7,321.38	4.31	315.17
Diana 2d	Grade Jersey	1899	4,971.66	....	....
		1900	2,447.36	5.82	142.32
		1901	5,434.10	5.31	288.54
		1902	3,861.40	5.47	211.21
Average			4,178.63	5.12	214.02
Eloise	Grade Jersey	1897	6,172.56	4.75	293.43
		1898	6,912.10	4.88	337.23
		1899	5,529.47	4.55	251.49
Average			6,204.71	4.74	294.05
Hattie	Grade Jersey	1897	5,784.80	4.73	273.79
		1898	5,527.45	4.86	268.56
		1899	6,936.74	4.75	329.53
		1900	5,963.23	4.45	265.46
		1901	6,828.50	4.53	309.17
		1902	6,169.80	4.84	298.34
Average			6,201.75	4.69	290.81
Mabel	Shorthorn—Jersey cross	1897	5,734.70	4.31	247.09
		1898	7,535.21	4.37	329.12
		1899	6,954.86	4.46	310.10
		1900	7,779.70	4.10	318.60
		1901	9,419.10	4.27	402.50
		1902	7,542.00	4.19	315.97
		1903	7,461.90	4.38	327.09
		1904	6,148.00	4.57	281.05
Average			7,321.93	4.35	318.44

RECORDS OF GRADE AND NATIVE COWS FOR SERIES OF YEARS REPORTED BY DAIRYMEN.

Milk and butter-fat records of single grade and native cows for series of years.

Owner.	State.	Breed.	Year.	Yield of milk.	Fat in milk.	Yield of butter fat.
				Pounds.	*Per cent.*	*Pounds.*
G. A. B	Michigan	Grade Jersey	1899	4,929.0	4.85	239.1
		do	1900	5,243.0	5.93	310.9
Average				5,086.0	5.41	275.0
G. A. B		Grade Jersey	1899	5,362.5	5.00	268.1
		do	1900	5,869.5	5.40	317.0
Average				5,616.0	5.21	292.6
G. A. B		Grade Jersey	1899	5,974.0	3.92	234.2
		do	1900	6,922.0	4.19	290.0
Average				6,448.0	4.07	262.1
A. D. McBain	New York	Grade Jersey	1888–97	7,532.0		
J. L. Hoyle	Iowa	do	1894			342.0
		do	1895			295.7
		do	1896			342.0
		do	1897			343.7
		do	1898			240.0
Average						312.7
Miss M. D. E	California	Native	1894			200.6
		do	1895			275.1
		do	1896			344.6
Average						273.4
Miss M. D. E	California	Native	1894			197.1
		do	1895			300.9
		do	1896			411.4
Average						303.1
Miss M. D. E	California	Native	1894			157.7
		do	1895			282.9
		do	1896			241.7
Average						227.4

MILK AND BUTTER-FAT RECORDS OF SINGLE GRADE COWS FOR SHORT PERIODS.

These records are of interest in showing the possibilities in dairy production, but must be coupled with more extended tests if true dairy capacity is to be determined. It has been difficult to secure authentic records of this character for grade cows, but those presented are believed to be substantially correct.

Milk and butter-fat records of single grade cows for short periods.

Owner.	State.	Name of cow.	Breed.	Time.	Total yield of milk.	Fat in milk.	Yield of butter fat.
				Days.	*Pounds.*	*Per ct.*	*Pounds.*
J. L. Kendall	Massachusetts	Guernsey Maid	Grade Guernsey	1	37.86	5.65	2.14
New Jersey Experiment Station.	New Jersey	No. 4	do	7	316.0	4.5	14.28
J. H. Bennett	New York	......	Grade Holstein.	1	73.0	......	......
New Jersey Experiment Station.	New Jersey	Queen	do	1	59.0	......	......
Do	do	do	do	7	381.8	3.9	14.88
J. H. Bennett	New York	......	do	7	492.0	......	......
New Jersey Experiment Station.	New Jersey	Queen	do	30	1,582.5	3.43	54.28
J. H. Bennett	New York	......	do	61	3,965.0	......	......
N. I. Bowditch	Massachusetts	......	Grade Jersey	1	57.0	......	......
......	Wisconsin	......	do	2	56.75	4.86	2.76
......	do	......	do	2	67.0	6.12	4.10
Hatch Experiment Station.	Massachusetts	Pearl	do	7	247.2	7.4	18.3
T. A. B	Wisconsin	......	do	7	254.0	5.09	12.93
E. L. R	Ohio	......	do	7	298.25	5.98	17.85
A. D. McBain	New York	......	do	7	331.56	......	......
D. A. Jordan	Indiana	Lady Tull	do	7	......	......	16.89
Experiment station.	Pennsylvania	......	do	28	1,097.9	5.8	63.7
A. D. McBain	New York	......	do	30	1,297.75	......	......
N. I. Bowditch	Massachusetts	......	do	31	1,656.0	......	......
Hatch Experiment Station.	do	Pearl	do	49	1,753.2	6.56	115.0
Do	do	do	do	159	5,241.0	5.54	290.3
New Jersey Experiment Station.	New Jersey	No. 5	Grade Shorthorn	7	356.6	4.5	15.88
W. S. Hill	Wisconsin	Toney	do	7	......	......	14.29

PART II.—RECORDS OF PUREBRED COWS.

The keeping of accurate records is perhaps of more importance to the owner and breeder of purebred stock than to dairymen who have nothing but grade and native cows in their herds. With the breeder of purebred stock the products of the dairy are often a secondary matter, his principal business being to breed and sell the animals. If he can present creditable records of the cows and heifers he may have for sale, as well as those of their ancestors for some years before, naturally these will assist in advertising his stock.

It has been the aim in the following pages to present records of purebred cows of various breeds under a variety of conditions of soil and climate, and it is believed that these will be of some value, not only to the dairyman, but to the breeder as well.

MILK AND BUTTER RECORDS OF PUREBRED HERDS FOR ONE YEAR.

These records were procured direct from dairymen; they were forwarded to the Dairy Division in response to the circulars already mentioned; they represent something over 100 herds. The data given in connection with them are quite full, and should give some light to those seeking dairy knowledge.

SUMMARY OF DATA RELATING TO MORE THAN 100 PUREBRED HERDS.

In the following table are summarized the data relating to a large number of purebred herds as secured direct from dairymen:

Milk and butter records of

Name.	State.	Number of cows.	Average age.	Breed.	Breed of bull.	Cows raised.	Cows purchased.	When fresh.
John P. Buckley	Me	25	6	Ayrshire	Ayrshire	Yes.		All times
W. P. Schauck	N. Y	35	4	do	do	Yes.	Few	do
Geo. C. Clark	N. H	15	4½	do	do	Yes.		Spring and fall.
Geo. H. Yeaton	N. H	18	7	do	do	Yes.		All times
L. S. Drew	Vt	22	8	do	do	Yes.	Bulls	do
E. B. Sherman	R. I	75	5	do	do	Yes.		do
C. A. Abell	Vt	13	4	do	do	Yes.		Spring
E. A. Holt	N. H	20	7	do	do	Yes.		All times
Melrose Farm	Va	32	7	do	do	Yes.		Fall and spring.
L. D. Stowell	N. Y	40	5	do	do	Yes.		Fall and winter.
E. J. Fletcher	N. H	25	4	do	do	Yes.		Fall
J. F. Butterfield	Pa	15	4⅓	do	do	Yes.		Spring
E. F. Pember	Me	30	6	do	do	Yes.		All times
W. V. Probasco	N. J	15	7	do	do	Yes.		do
C. M. Winslow	Vt	30	5	do	do	Yes.		do
C. H. Hayes & Son	N. H		6½	do	do	Yes.	Bulls	do
Hull Bros	Ohio	10	5	Brown Swiss	Brown Swiss	Yes.		do
M. W. Oliver	Pa	10	8	Devon	Devon	Yes.		Spring
L. V. McWhorter & Sons.	Wash	9	5	North Devon	North Devon		Yes	Fall
J. W. Swab	Ohio	37	5	Dutch belted	Dutch belted	Yes.		All times
Howard P. Tuttle	Conn	18		Guernsey	Guernsey	Yes.		do
L. V. Axtel	Ohio	35	5	do	do	Yes.	Few	do
J. G. Hickcox	Wis	15	5	do	do			Fall
J. C. Chambers	Mich	25	6	do	do	Yes.	Bulls	do
Chas. Solveson	Wis	25	6	do	do	Yes.		All times
Ezra Michener	Pa	20	6	do	do	Yes.	Yes	do
E. P. Turner	Me	18	6	do	do	Yes.		
B. Clark & Son	Wis	19	5	do	do			Fall, winter, and spring.
A. E. Pelton	Iowa	14	6	do	do	Yes.		Spring
F. B. Fargo	Wis	45	4½	Holstein	Holstein	Yes.	Few	Winter
Isaac Dalrymple	N. Y	30	5	do	do	Yes.		All times
McKay Bros	Iowa	30		do	do	Yes.		do
State Hospital	Vt	45	7	do	do	Yes.		do

purebred herds for one year.

Summer rations.	Winter rations.	Cost of keeping cow.	Average annual production.		Average fat in milk.
			Milk.	Butter.	
			Pounds.	*Pounds.*	*P. ct.*
Pasture; green oats; grain..	Grain 7 to 10 quarts (cotton-seed meal ⅛, bran ⅜, middlings ⅛, oats and corn ⅜).	$60.00	6,500	280	3.8
Pasture....................	Silage; alfalfa; hay; gluten feed, bran, oil meal.	47.00	....	....	4.2
Pasture; oats and peas; corn fodder; green hay.	Silage; clover; mixed hay; oat and pea hay; grain 6 to 8 pounds (cotton-seed meal, corn and cob, gluten).	35.00	6,480	300	......
Pasture; gluten, linseed meal, bran, and middlings.	Silage; hay; grain similar to summer.	70.00	7,100	301	3.6
Pasture....................	Silage 1 bushel; grain 6 quarts (bran ¾, cotton-seed meal ¼).	40.00	6,000	300	......
Pasture; sometimes hay and grain.	Silage 1 bushel; hay; grain.......	....	....	....	3.0
Pasture....................	Corn meal, barley meal, and mixed feed.	35.00	....	....	3.9
Pasture; gluten	Silage; hay; gluten, and middlings.	....	....	....	......
Pasture; grain (⅓ cotton-seed meal, ⅓ bran, ⅓ corn and cob meal).	Corn stover; corn; pea and clover hay; grain.	50.00	5,545	243	3.76
Pasture; corn silage, or 4 quarts bran.	Silage 1 bushel; hay; 3 quarts gluten, and 3 quarts bran.	35.00	7,000	300	......
Pasture; 6 pounds grain....	Silage and hay; 12 pounds mixed grain.	40.00	7,000	....	4.9
Pasture....................	....	30.60	....	250	4.25
Pasture; light feed of grain to heavy milkers.	Hay; millet; grain; vegetables...	40.00	6,000	300	4.25
Pasture (clover and timothy).	Silage; corn fodder; malt sprouts, gluten, bran.	43.00	7,377	347	4.2
Pasture; 4 quarts bran	Silage ½ bushel; hay; 1 to 8 quarts bran and 1 quart barley.	50.00	7,183	320	3.82
Pasture; fresh brewers' grains; cotton seed meal; hay.	Ensilage; fresh brewers' grains; cotton-seed meal; hay.	30.00	6,000	259	3.7
Pasture; in dry time corn meal, bran, and oil meal.	Silage; cob meal, bran, oil meal, and gluten feed.	....	6,681	....	......
Pasture; supplemented by bran, corn, and oats.	Hay; corn fodder; corn and oats; bran.	26.00	5,100	250	4.3
Pasture; alfalfa hay........	Alfalfa hay; carrots	16.00	[a] 1,849	....	......
Pasture....................	Hay; shredded corn fodder; corn and cob meal, bran.	32.00	5,840	....	3.6
Pasture; soiling crops; some grain.	Silage; hay; grain	59.00	4,598	....	5.54
Pasture; after Aug. 1, gluten.	Mixed hay; clover; corn fodder; chop, and oil meal.	40.00	7,000	375	5.0+
Pasture; bran, gluten feed .	Silage; bran, and gluten..........	....	7,000	350	......
Pasture; corn fodder; corn silage.	Clover hay; corn fodder; bran; gluten meal.	30.00	8,000–10,000	....	5.0
Pasture; grain; silage when pasture is short.	Silage; clover hay; grain (¼ corn, ¼ oats, ¼ brewers' grains, ¼ malt sprouts).	35.00	6,400	370	5.0
Pasture; green corn; grain (bran ¾, corn meal ¼).	Silage; hay; corn fodder (bran, corn meal, gluten meal, and oil-cake meal).	50.00	7,000	390	5.0
Pasture; oats and peas; clover; corn meal, and cotton-seed meal.	Silage; hay; bran, corn meal, and cotton-seed meal.	....	4,610	275	5.0
Pasture; bran; silage; sorghum when pasture is short.	Corn and soy bean silage; hay (clover and alfalfa); 10 pounds grain.	40.00 45.00	6,000	325	5.0
Pasture; green corn; green oats: feed twice a day.	Clover hay; corn and stalk ground; oats and corn.	24.75	....	300	4.0
Pasture; sugar cane; alfalfa; ground oats, and middlings.	Silage; clover; alfalfa hay; ground corn with cob, oats, bran, middlings, gluten, linseed meal.	45.00 50.00	6,000–10,000	225 375	....
Pasture; Union grains, gluten, and bran.	Union grains, corn meal, and bran.	....	8,000	....	......
Pasture; bran; silage.......	Silage; bran, gluten feed, corn, oats, barley; hay.	....	8,500	335	3.4
Pasture; grain ration (mixed feed).	Silage with corn on it; hay; mixed feed.	35.00	7,600	....	......

[a] Average of 5 cows for four months (not counted in general average).

Milk and butter records of pure-

Name.	State.	Number of cows.	Average age.	Breed.	Breed of bull.	Cows raised.	Cows purchased.	When fresh.
J. H. D. Whitcomb	Mass	60	6	Holstein	Holstein	Yes.	Yes.	All times
W. H. Grenell	N. Y.	40	4	do	do	Yes.		Spring
Nick Grimm	Wis	22	6	do	do	Yes.	Yes.	Spring and fall.
W. O. Jackson & Sons	Ind	31	3	do	do	Yes.		All times
J. H. Coolidge & Sons	Ill	25	5	do	do	Yes.		do
W. C. Hind	N. Y	70	5	do	do	Yes.	Yes.	Spring and fall.
W. M. Benninger	Pa	16	5	do	do	Yes.		do
E. E. Randall	Wis	35	4	do	do	Yes.		do
Knapp & Pierce	Ohio	30	4	do	do	Yes.		All times
C. D. Holt & Son	Wis	35	5	do	do	Yes.		do
I. L. Curtis	Wis	15	5	do	do	Yes.		Fall
W. B. Smith & Son	Ohio	90	5	do	do	Yes.	Few.	Fall, winter.
A. B. Chase	N. Y.	28	6	do	do	Yes.	Few.	do
A. A. Cortelyou	N. J	110		do	do	Yes.	Few.	All times
The Stevens Bros.-Hastings Co.	N. Y.	150		do	do	Yes.		Winter
Gardner & Misner	N. Y.	25	5	do	do	Yes.		Fall and winter.
W. R. Gates	Wis	14	5	do	do	Yes.	Few.	Fall
J. B. Irwin	Minn	20	4	do	do	Yes.	Few.	Fall, winter.
J. H. Mead	Vt	14	6	do	do	Yes.	Few.	do
S. Mather & Sons	N. Y	32	5	do	do	Yes.		Spring and fall.
F. W. Allis	Wis	40	4½	do	do	Yes.		Winter
W. H. Jones	Wis	30	5	do	do	Yes.		Fall
Gillett & Son	Wis	20	4½	do	do	Yes.		do
C. F. Stone	Kans	15	6	do	do	Yes.	Few.	do
E. J. Burrell	N. Y	150	7	do	do	Yes.		Fall, winter.
Thos. Fassitt & Sons	Md	23	7	do	do	Yes.	Yes.	do
F. G. Johnston	Ohio	16	5	do	do	Yes.		do
Don J. Wood	N. Y	33		do	do	Yes.		
A. J. Daugherity	Ill	100	5	do	do	Yes.		All times
Eastern Mich. Asylum	Mich	59		do	do	Yes.		do

bred herds for one year—Continued.

Summer rations.	Winter rations.	Cost of keeping cow.	Average annual production.		Average fat in milk.
			Milk.	Butter.	
			Pounds.	*Pounds.*	*P. ct.*
Pasture; corn meal, and bran.	Corn meal and bran	$50.00 75.00	10,000–12,000	....	3.9
Pasture; 1 quart bean meal.	Silage; hay; 4 quarts pea meal	35.00	....	275	3.8
Pasture; 2 quarts bran	Four quarts (bran, oats, and corn meal, equal parts).	30.00	8,000	....	3.5 3.8
Pasture; brewers' grains; silage.	Silage; clover hay; fodder; brewery grains; bran, and gluten.	30.00	....	430	3.5
Pasture	Clover; corn stover; corn, oats, and bran.	30.00 35.00	8,500–9,000	....	3.6
Pasture; clover hay; bran, oil meal, hominy meal, dried grains.	....	....	10,000	375	......
Pasture; Union grains	Hay; shredded corn stalks; Union grains; corn and cob meal.	50.00	10,000	450	4.0
Pasture, supplemented by grain (ground oats ⅓, bran ⅓, corn meal ⅓).	Ground oats, corn meal, bran, oil meal, 12 to 18 pounds.	35.00	14,000	....	3.7
Pasture; bran, gluten feed; silage in fall.	Silage; hay; corn stover; bran, corn and oat chop, and gluten feed.	30.00	10,000	....	3.8
Pasture; silage; bran when pasture is short.	Silage; hay; bran, oil meal, ground barley.	....	4,500	200	......
Pasture; oats and corn in late fall.	Silage; hay; corn stover; oats. corn, bran.	30.00	....	350	3.6
Pasture; silage, bran, "XXXX."	Silage; hay; bran, "XXXX," malt sprouts, corn, oats, barley.	55.00	9,850	....	......
Pasture; green fodder	Silage, 40 pounds; clover hay, 10 pounds; mangels, 12 pounds; grain, 8 pounds (bran 3/7, barley meal 2/7, gluten 2/7).	51.00	7,500	328	......
Pasture; bran, gluten; silage.	Bran, gluten, oats and corn, and oil meal.	60.00	7,000–12,000	....	3.7
Pasture; 4 pounds grain	Grain, 4 to 14 pounds, according to milk flow.	45.00 50.00	8,000–12,000	....	......
Pasture; wet brewers' grains; corn meal.	Silage, 40 pounds; brewers' wet grains, 8 pounds; hay, 10 pounds; grain, 10 to 15 pounds (bran 300, gluten 125, corn meal, 100).	50.00	9,304	370	3.4
Pasture; ground oats and bran.	Clover, timothy, and wild hay; corn fodder; bran, ground oats, corn and cob meal.	35.00	8,000	300	3.5
Pasture; silage; 6 to 10 pounds bran, small oats.	Silage, 30 to 40 pounds; clover hay, 8 to 10 pounds; grain (bran ½, gluten feed ¼, ground oats ¼).	50.00	10,000	400	3.45
Pasture; 2 quarts grain (bran 600, corn meal 400, cotton-seed meal 100, oil meal 100).	Silage; hay; 6 quarts mixed grain.	72.00	14,000	....	......
Pasture; after July 15, gluten, oat and barley meal, "XXXX."	Silage; hay; 8 pounds mixed grain.	40.00	8,326	355	3.66
Pasture; silage; hay; bran, ground oats, and corn.	Silage; hay; bran, ground oats, and corn.	....	7,507	263	......
Pasture	Silage; hay; bran, oat meal, rye, barley meal.	27.00	10,000	430	3.7
Pasture: silage; grain (bran and corn meal).	Silage; hay; grain (bran, ground oats, gluten feed, equal parts).	40.00 50.00	11,515	....	3.6
Alfalfa hay; corn and cob meal; kaffir corn heads; bran, oat meal.	Same as in summer, only more of it.	22.00	10,500	....	......
Pasture; green fodder	Silage; hay; barley sprouts, gluten (nutritive ratio 6:1).	38.00	6,500	....	......
Pasture; green fodder; rye and bran.	Silage; hay; fodder; bran, gluten, corn and cob, oats, oil meal.	30.00 35.00	6,000–10,000	....	3.5 3.8
Pasture; distillers' dried grains; wheat bran.	Silage; hay; corn stover; oat straw; distillers' dried grains, and bran.	50.00	8,000	345	3.7
Pasture, supplemented with oats and peas and fodder corn; grain ration.	Silage; hay; grain	....	7,664	....	......
Pasture; silage; gluten feed.	Silage; hay; oat straw; bran, gluten feed, corn meal.	50.00	12,000	500	3.4 4.0
Pasture; hay; gluten feed, corn and oats, bran, corn.	Silage; hay; gluten feed, bran, corn and oats, corn.	50.00	9,768	....	......

Milk and butter records of pure-

Name.	State.	Number of cows.	Average age.	Breed.	Breed of bull.	Cows raised.	Cows purchased.	When fresh.
Pierce Land and Stock Co.	Cal	150	5	Holstein	Holstein	Yes.	Yes.	Fall, winter.
A. W. Brown	N. Y	36	4	do	do	Yes.		Spring, fall.
Wm. B. Goodrich	Iowa	15	5½	Jersey	Jersey	Yes.	Few.	Fall, winter.
G. H. Sweet	N. Y	22	7	do	do	Yes.		All times
R. W. Ellis	Me	24	5	do	do	Yes.		Fall
David Roberts	N. J	70	6	do	do	Yes.	Half.	All times
W. R. Spann	Tex	60	6	do	do	Yes.	Few.	do
Biltmore Farms	N. C	130	8	do	do	Yes.	Few.	do
The Billings Farm	Vt	26		do	do	Yes.		do
E. R. Hicks	Wis	40	6	do	do	Yes.	Few.	do
Reform School	Pa	21	5	do	do			
G. V. Saffarrans	Mo	20	6	do	do	Yes.	Yes.	All times
Windemere Herd	Me	25	6	do	do	Yes.	Few.	do
W. L. Bradbury	Va	10	6½	do	do	Yes.	Few.	Fall, winter.
G. V. Woollen	Ind	20	5	do	do	Yes.	Few.	All times
Joseph Mailliard	Cal	250	7	do	do	Yes.		do
T. F. Marston	Mich	70	6	do	do	Yes.		do
J. K. Honeywell	Nebr	30	6	do	do	Yes.	Few.	do
F. L. Davis	Vt	20	4	do	do	Yes.	Few.	do
H. C. Young	Nebr	34	5	do	do	Yes.	Few.	Spring, fall.
Austin Leonard & Son.	Pa	19	6	do	do	Yes.		do
S. H. Joiner	Wis	12	8	do	do	Yes.	Few.	Fall
D. H. Olds	Ohio	100	5		do	Yes.		All times
W. J. Hussey	Ohio	35	5	do	do	Yes.		do
M. A. McDonald	Ind	50	3	do	do	Yes.	Few.	Spring
D. A. Jordan	Ind	25	6	do	do	Yes.	Few.	Spring, fall.
John F. White	N. Y	250	6	do	do	Yes.	Few.	All times
W. Gettys	Tenn	50	6	do	do	Yes.	Few.	do
J. A. Middleton	Ky	27	4	do	do	Yes.	Few.	do
E. B. Cooper	Mo	30	6	do	do	Yes.	Few.	Fall, winter.
A. F. Peirce	N. H.	25	5	do	do	Yes.		Fall
M. M. Offutt	Tex	10	4	do	do	Yes.	Yes.	do

bred herds for one year—Continued.

Summer rations.	Winter rations.	Cost of keeping cow.	Average annual production.		Average fat in milk.
			Milk.	Butter.	
			Pounds.	*Pounds.*	*P. ct.*
Pasture......................	Pasture; mill feed; and beets.....	$30.00	10,000	430	3.7
Pasture; small amount bran	Silage; hay; bran, gluten, and distillers' dried grains.	....	8,128	332	3.5
Silage; alfalfa hay; corn and cob meal, and oil meal; no pasture.	Same as summer..................	35.00	6,570	398	5.2
Pasture; green oats and peas; bran and gluten during dry period.	Silage; hay; bran, gluten, oil meal, dried-beet pulp, ground oats.	68.00	6,550	405	5.3
Pasture......................	Silage; hay; pea hay; Hungarian grass; oats, bran, and cotton-seed meal.	30.00	5,000	300	5.25
Pasture; cowpeas, and green corn; bran and cerealine.	Silage; hay; corn fodder; ground corn and oats, cotton-seed meal, bran.	50.00	5,650	....	5.5
Pasture; alfalfa	Alfalfa hay; bran, corn meal, cotton-seed meal, and cotton-seed hulls.	32.50	....	389	5.0
Pasture; soiling crops; grain 7 pounds average.	Silage; hay; stover; grain 7 pounds (corn meal, cotton-seed meal, oil meal, crushed oats, bran, distillers' grains, molasses feed, gluten).	....	5,365	383	......
Pasture; soiling crops—clover, corn, alfalfa.	Silage; hay; corn stover; mangels; corn on cob, oats, barley, and oil meal.	48.00	6,325	402	5.45
Pasture; grain..............	Silage; hay; grain	50.00	7,280	467	5.5
....	....	....	5,037	289	4.9
Pasture; bran when pasture is poor.	Clover hay; ground corn and bran.	25.00	....	400	5.2
Pasture; hay; green crops; cotton-seed meal and bran.	Silage; hay; potatoes; 4 to 8 quarts of cotton-seed meal and bran.	50.00	4,800–6,000	300 350	5.4
Pasture; bran and cotton-seed meal.	Corn stover 20 pounds; corn and cob meal 6 pounds, gluten 3 pounds, cotton-seed meal 2 pounds, linseed meal, 1 pound.	35.00	5,548	353	5.45
Pasture; silage; clover; bran, corn and cob meal.	Silage; clover hay; shredded fodder; bran, corn and cob meal.	40.00	5,000	....	5.0
Pasture to July; then add green corn and grain.	Bran 7 pounds, chop feed 4 pounds, cocoanut cake 1 to 1½ pounds.	45.00	4,800	300	......
Pasture; silage; dried-beet pulp; cotton-seed meal.	Silage; clover hay; cotton-seed meal, linseed meal, and dried-beet pulp.	45.00	6,000	385	5.5
Pasture; corn and cob meal.	Alfalfa hay; bran, corn and cob meal.	34.00	5,994	319	......
Pasture; mixed feed; cotton-seed meal.	Silage; clover hay; mixed feed, and cotton-seed meal.	46.50	6,000	340 365	......
Pasture; alfalfa hay; corn and oat chop.	Silage; alfalfa hay; shredded fodder; bran, corn and oat chop.	35.00	5,000	290	5.0
Pasture; 2 pounds bran.....	Silage; hay; union grains 5 pounds.	40.00	5,160	300	5.0
.....do......................	Hay; corn fodder; corn and oat meal 5 pounds, bran 3 pounds.	35.00	6,000	364	5.2
Pasture; bran when pasture is short.	Silage 25 pounds; hay 10 pounds; corn protegran 3 pounds, corn bran 2 pounds, oil meal 1 pound.	35.00	5,000	....	5.0
Pasture; bran and dried brewers' grains.	Silage; hay; grain	35.00	4,000	240	5.3
Pasture; ground oats and bran.	Corn stover; hay; bran, and ground oats.	35.00	....	350	5.0
Pasture; bran	Silage; bran, and cotton-seed meal.	32.00	5,000	275	5.0
Pasture; silage; alfalfa.....	Silage; alfalfa, gluten feed, bran.	50.00	6,500	395	5.2
Pasture; 1 quart bran and 1 pint cotton-seed meal.	Silage; hay; corn stover; bran and corn meal.	45.00	....	300	5.0
Pasture; bran and ship stuff.	Silage; clover hay; ship stuff, corn and cob meal.	60.00	4,523	....	5.0+
Pasture; alfalfa; green-corn fodder.	Corn fodder; clover and alfalfa hay; bran.	....	3,000	....	5.0
Pasture; soiling crops; 6 to 10 pounds grain.	Silage; hay; oat fodder; corn stover; grain.	50.00	6,000	380	5.44
Pasture; rice bran and corn chop (4 to 6 pounds).	Hay; grain 8 to 12 pounds (rice bran, corn chop, cotton-seed meal).	40.00	6,000–7,000	350 400	5.0

Milk and butter records of pure-

Name.	State.	Number of cows.	Average age.	Breed.	Breed of bull.	Cows raised.	Cows purchased.	When fresh.
O. B. Yates	N. Y	8	5	Jersey	Jersey	Yes		All times
M. H. Olin	N. Y	59	6	do	do	Yes	Yes	do
F. G. Craft	Ind	20	5	do	do	Yes		Fall
C. LeB. Homer	Pa	29	4	do	do	Yes	Yes	All times
A. O. Auten	Ill	60	7	do	do	Yes	Yes	Fall, winter.
N. H. Robinson	Wis	24	7	do	do	Yes		Fall
C. O. McAhron	Mo	7	7	do	do		Yes	All times
A. M. Stevens	Wash	13	5	do	do	Yes	Yes	Fall
L. P. Bailey	Ohio	40		do	do	Yes		All times
H. R. Ihrie	Miss	35	3	do	do	Yes	Few	Fall, winter.
A. H. Cooley	N. Y	40	7	do	do	Yes		Fall
W. & I. Mekeel	N. Y	26	5	do	do	Yes	Few	All times
F. H. Scribner	Wis	21	7	do	do	Yes		Fall
F. E. Dawley	N. Y	40	6	do	do	Yes		All times
Estate of A. Chisholm	Cal	18	6	do	do	Yes		June-Sept
J. W. Martin	Wis	48	6	Red Polled	Red Polled	Yes	Yes	Fall, spring.
P. G. Henderson	Iowa	22	10	do	do	Yes		All times
Frank Hartline	Ohio	9	5	do	do	Yes	Few	Fall, winter.
Calvin Lovett	Mich	28	7	Shorthorn	Shorthorn	Yes		All times
J. K. Innes	N. Y	60	7	do	do	Yes	Few	do

bred herds for one year—Continued.

Summer rations.	Winter rations.	Cost of keeping cow.	Average annual production.		Average fat in milk.
			Milk.	Butter.	
			Pounds.	*Pounds.*	*P. ct.*
Pasture; corn and oats	Corn stover; hay; straw; corn and oats, bran, oil meal.	....	5,620	341	5.2
Pasture	....	$37.00	....	383	5.4
Pasture; bran	Silage; fodder; mowed oats; bran, oil meal.	30.00	4,750	295	5.4
Pasture; hay; grain (bran and gluten).	Silage; mangels; corn fodder; hay; bran, gluten.	....	7,500	....	5.0
Pasture; alfalfa; gluten feed.	Silage; ground oats, and cotton-seed meal.	48.50	....	300	5.04
Pasture; corn and bran	Silage; hay; corn meal, bran, gluten.	34.50	7,176	470	5.77
Pasture; bran, corn and cob meal.	Corn stover; prairie hay; bran, cotton-seed meal, corn and cob meal.	30.00	4,790	....	5.5
Pasture; bran	Alfalfa; clover hay; bran, shorts	....	6,765	469	......
Pasture; bran, cotton-seed meal, gluten.	Silage 40 pounds; hay 5 pounds; gluten feed, cotton-seed meal, corn and oat chop, dried brewers' grains.	40.50	5,200	....	5.35
Pasture—Bermuda grass, Japan clover; soiling crops; bran, cotton-seed meal.	Bermuda hay; cotton-seed hulls, cotton-seed meal, bran, corn, oats; Japan clover.	36.00	4,000	350	......
Pasture; bran, distillers' grains 8 quarts per day.	Silage; grain, 12 quarts per day (bran, wheat middlings, distillers' grains).	....	8,000	....	5.2
Pasture; "flakes;" silage when pasture fails.	Silage; clover hay and alfalfa; "flakes."	40.00	5,153	332	5.5
Pasture; silage; bran	Silage; hay; bran, gluten feed	35.00	7,665	....	5.6
Pasture; alfalfa, green; alfalfa and corn silage.	Alfalfa and corn silage; alfalfa hay; oil meal, bran, distillers' grains, "XXXX."	36.00	7,060	408	5.1
Pasture; alfalfa	Silage; alfalfa and oat hay	30.00	5,500	400	......
Pasture; after Aug. 1, sweet corn.	Mill feed; brewers' grains, corn, oats, oil meal.	35.00	6,000	300	4.4
Pasture; in early fall, sweet corn.	Silage; shredded corn fodder; hay; wheat shorts.	30.00	5,713	270	4.1
Pasture; bran, corn, and oats.	Corn stover; hay; bran, corn, and oats.	....	7,000–10,000	355	......
Pasture; sweet corn	Silage; corn and oats	20.00	7,000	300	......
Pasture; grain	Silage 20 pounds; hay 10 pounds; grain 7½ pounds.	42.00	6,800	299	......

A study of the above table shows that the annual cost of feeding a cow ranged, with the 95 dairymen reporting, from $16 to $75, the average being $40.36. The average of the milk yield reported by 99 dairymen was 7,093.1 pounds, and the average butter yield reported by 78 dairymen was 341.2 pounds. It should be remembered that most of these dairymen practiced up-to-date methods, were careful feeders as well as breeders, and kept careful records of their work. These records present a great contrast to those reported under creamery patron investigations in Part I (pp. 31–43).

Below are some additional milk and butter-fat one-year records obtained from other sources than the foregoing:

Milk and butter-fat records of purebred herds for one year.

Owner.	State.	Number of cows.	Breed.	In milk.	Average yield of milk.	Average. fat in milk.	Average yield of butter fat.
					Pounds.	*Per ct.*	*Pounds.*
L. S. Drew	Vt	24	Ayrshire	294 days	6,741.0	4.02	270.9
J. D. W. French	Mass	11	do		6,218.0		
C. H. Hayes & Son	N. H	30	do		6,570.0		
C. M. Winslow	Vt	16	do		7,289.0	4.00	291.5
W. V. Probasco	N. J	5	do		8,141.6	3.82	321.8
J. J. Hill	Minn	5	do		8,123.2	3.81	309.6
G. H. Yeaton	N. H	5	do		8,483.4	4.56	387.2
E. J. Fletcher	N. H	5	do		8,604.0	4.08	351.4
Howard Cook	Ohio	5	do		7,940.4		298.6
E. M. Barton	Ill	16	Brown Swiss		7,813.0	3.94	307.8
Ezra Michener	Pa	15	Guernsey	10 months	6,093.3		318.3
L. P. Morton	N. Y	35	do		7,689.0	5.73	440.6
Geo. C. Hill & Son	Wis	5	do		7,660.7	5.58	421.8
N. I. Bowditch	Mass	16	do	10¾ months			340.4
Andrew Baker	N. Y	10	Jersey		6,245.0	5.72	357.2
W. K. Vanderbilt	N. Y	23	do		5,097.0	5.13	261.5
C. L. Smith	Vt	34	do		5,872.0	4.99	293.1
P. Cunningham	Mass	20	do		6,022.0	5.42	326.4
Frank Lee	Wis	19	do		5,126.8	5.27	270.2
N. W. Adams	Me	10	do				271.4
H. W. Davis	Vt	25	do				270.0
Springside Jersey Farm	Tex	28	do				312.9
Geo. Davis	Vt	10	do				377.2
T. G. Bronson	Vt	28	do				286.3
H. T. Darling	Pa	23	do				248.6
S. J. Hastings	Vt	23	do				339.0
G. E. Nichols	N. Y	17	do				273.5
H. Vaughn	Nebr	30	do				231.4
Carrie J. Nelson	Vt	26	do				255.9

DESCRIPTIONS OF A FEW PUREBRED HERDS.

NOTES ON AN AYRSHIRE HERD IN VERMONT.

This herd was established in 1873 by the purchase of a bull and six heifers, and an occasional purchase since of a noted cow or well-bred heifer, with a view of improving the herd. The bulls used have been the best that could be found, from cows of noted dairy quality and long teats. The best heifer calves from the best cows have been annually kept to take the place of the old cows or such as could not reach the herd standard. The milk from each cow is weighed at each milking. Until 1899 the butter was computed by the addition of one-fifth, but the method has been changed to one-sixth to conform to the standard adopted by the experiment stations. The per cent of butter fat and total solids is the average of tests made by the experiment station. Cows from this herd have won first and second for the butter-fat prize offered by the Ayrshire Breeders' Association and State fair, jointly, for the years 1896, 1897, 1898, and 1899. This herd is free from tuberculosis. In summer the cows are driven about 1¼ miles to pasture, with a small night pasture near the barn. They are milked in the stable, and are fed from one-half to 2 pounds of spring-wheat bran at each milking. During the fall they have the run of the meadows. In winter they are fed all the low-meadow hay they will eat clean and from 1 pound to 4 pounds of bran, the fresh cows having 2 pounds of mixed feed in addition. This mixture is ground barley, cotton-seed meal, linseed oil meal, gluten meal; equal parts by weight. The grain is fed once a day on about one-third bushel ensilage. The cows are turned out to drink at a tub of running water twice each day, and on pleasant days they remain out an hour or two in the middle of the day. In breeding and selecting cows for this herd careful attention has been paid to the dairy ability of each cow, and unless a cow in her prime could give 6,000 pounds of milk or 300 pounds of butter she was disposed of, regardless of other good qualities, and a cow's standing in the stable was not secure unless she could give, in her prime, under favorable conditions, 7,000 pounds of milk or 350 pounds of butter in a year. The herd is made as uniform in size, color, and style as possible, that they may present a fine appearance either when standing in the stable or moving along the road to pasture. The following is the general make-up required:

Size.—About 1,000 pounds at maturity, this size having been found to give the best results in this locality and being of sufficient size to please buyers, either for breeding or to sell in Brighton as milk cows.

Color.—Dark red with clear white patches—about one-fourth to one-third white being preferred. This gives a wonderfully attractive and lively look to a herd of cows, grouped or moving. Then, too, I have thought cows of this color were tougher and gave yellower milk and butter.

Style.—Small head and horns, slim neck, straight back, sharp shoulders, wide on the loin; large shapely hind quarters, long slim tail; udder extending well forward and back, well up under belly; teats long, of equal length, well spread; large milk veins.

Disposition.—Quiet and pleasant.

Milk record for 1902—Official test.

Name.	Number.	Age.	Yield of milk.	Total solids in milk.	Butter fat in milk.	Yield of butter.
		Yrs.	*Pounds.*	*Per cent.*	*Per cent.*	*Pounds.*
Rose Deruth	10346	12	6,041	12.02	3.40	323
Rose Deross	10347	12	5,399	13.08	4.02	249
Rose Cleon	11143	11	6,594	12.35	3.75	288
Acelista	12094	8	9,090	12.24	3.65	386
Iola Lorne	12773	8	8,661	13.05	4.06	389
Rose Aster	13683	4	4,822	13.16	3.91	221
Laura Kilbowie	15465	3	5,981	13.30	4.03	275
Floy Corslet	15023	3	5,884	13.95	4.38	291
Rose Dapple	15024	3	5,711	12.91	3.84	248
Rose Clockston	15026	3	7,302	12.69	3.61	292
Rose Brodick	15029	3	7,117	12.83	3.84	311

Official test of herd for 1901-2 in the home dairy test.

Name.	Number.	Yield of milk.	Total solids in milk.	Butter fat in milk.	Yield of butter.
		Pounds.	*Per cent.*	*Per cent.*	*Pounds.*
Acelista	12094	9,906	12.48	3.77	421
Rose Clenna	11153	7,884	13.06	4.12	366
Linda Douglas	13388	7,965	12.86	3.82	351
Rose Carentine	13655	8,016	12.69	3.63	330
Rose Erica	12775	8,853	12.03	3.29	330
Iola Lorne	12773	7,301	13.00	3.89	319
Rose Veritas	12076	6,924	12.95	3.94	313

Twenty-three years' milk record.

Year.	Number of cows.	Average yield of milk.	Year.	Number of cows.	Average yield of milk.
		Pounds.			*Pounds.*
1880	10	6,035	1893	10	6,233
1881	11	6,176	1894	19	6,454
1882	9	6,672	1895	17	6,765
1883	15	6,168	1896	16	7,289
1884	16	6,814	1897	15	7,228
1885	11	7,025	1898	19	6,956
1886	16	6,238	1899	17	6,180
1887	16	5,782	1900	22	7,189
1888	16	6,356	1901	15	6,711
1889	15	5,836	1902	11	6,600
1890	17	5,480			
1891	14	5,971	Average, 23 years	......	6,452
1892	12	6,249			

DESCRIPTION AND RECORDS OF ANOTHER AYRSHIRE HERD IN VERMONT.

This herd was bred for thirty-five years without the addition of any females after the first purchase. The following statements are by the owner:

> In 1865 I selected a few Ayrshires of the choicest breeding I could find from imported stock, and from that foundation, with the introduction of bulls from the choicest families, I have steadily bred with a view of establishing a herd that shall retain the characteristic type of the Ayrshire, and have steadily selected as breeders such as showed a large percentage of cream; and, in addition to the periodical cream tests, I have adopted the daily weighing of each cow's milk, and these figures are from the records of weighing milk and testing for cream. I have also selected for large teats.
>
> In looking at the entire herd as they stand in the yard, one can not help noticing the uniformity of size, style, and color, being of dark red with white patches, of fine style and fair size, with a decidedly milky look to them all, as you might naturally expect from thirty-five years breeding to one purpose, without the addition of any females after the first purchase. The herd as they stand to-day are, except the bulls, all of my own breeding.
>
> I am using at the head of my herd this year the bull Lord Watson, register No. 7276. His dam, Miss Ollie, register No. 12039, gave me by actual test of the Vermont Experiment Station, 56 pounds of milk in one day and made 3 pounds of butter in one day, making 21 pounds of butter in one week, and for the year 1902, 9,924 pounds of milk, 514 pounds of butter—winning the first prize offered by the Ayrshire Breeders' Association. My cows are kept on grass from May 20 to October 1; during the fall they have the run of the meadows. This winter the feed is for cows fresh in milk, one-half bushel of ensilage with corn on, twice a day, 6 quarts of bran and middlings a day. The cows not fresh in milk get ensilage twice a day and hay and clover mixed once a day. I have never had a case of tuberculosis in my herd.

A number of cows in this herd have yearly milk records exceeding 9,000 pounds and butter records of over 400 pounds.

The following is a record of the herd from January 1, 1903, to January 1, 1904:

Milk and butter record of a purebred Ayrshire herd.

Name of cow.	Register No.	Age.	In milk.	Yield of milk for 1 year.	Yield of butter for 1 year.
		Years.	*Days.*	*Pounds.*	*Pounds.*
Miss Ollie	12039	10	279	6,760	365
Pride of Burlington	11932	11	315	7,580	336
Robina Shelburne	13776	5	305	6,620	312
Lady Watson	12644	10	277	7,019	312
Victorine 2d	13479	6	280	5,680	302
Roanette	11476	12	310	6,950	300
Victorine 4th	14162	6	308	5,888	287
Printsteps 8th	12643	10	268	6,285	282
Miss Ollie 3d	14887	5	323	5,562	280
Regina	13773	5	312	5,770	276
Aunt Abbie	13220	7	254	6,312	272
Lolita 3d	11481	12	330	6,317	266
Naney Rhea	13476	7	282	5,220	268
Hazle B 4th	18476	7	301	5,026	260
Lady Wonder	14158	6	270	5,440	255
Aunt Olive	16125	3	285	5,387	258
Lady Sears	12641	10	255	6,125	251
Sheba	11931	11	272	5,477	251
Roanette 2d	13222	7	280	6,127	242
Pink Conley 3d	13217	7	264	5,658	230
Roanette 3d	15788	3	260	4,877	216
Lady Upton	14160	6	263	5,673	216
Sheba 3d	14157	6	227	4,210	207

A HERD OF 100 AYRSHIRES IN NEW HAMPSHIRE.

This herd is of particular interest for the reason that with one exception every individual was bred and raised on the farm, and families have been bred by themselves and kept distinct.

The milk of this herd has been weighed at every milking for twenty years, and the sheets from the stable are on file for reference. After giving every cow credit at the end of the month for the amount of her milk on the books, our experience is that a cow will give 500 pounds more milk in a year by weighing every day, as more care will be taken by the milker to get every drop, as each milker has a pride to have his cows keep up their regular flow. The Ayrshires are a very hardy race of cattle, "good feeders," quiet, quick to learn their surroundings and attendants, and quickly responsive to good care and attention. The cow that is sired by an Ayrshire bull of a good milking family, out of a Jersey or native cow, makes the ideal family cow, or the money-making cow for the dairyman.

Below are given some milk records of the herd by families:

QUEEN MARY FAMILY.

Queen Mary, No. 6578, has a record of 70 pounds in one day, 403½ pounds in seven days, 1,669½ pounds in thirty days, 3,192 pounds in sixty days, 5,000 pounds in one hundred days, 11,154 pounds in twelve consecutive months.

Marionette, No. 9391, (dam Queen Mary), record, twelve consecutive months, 7,831 pounds.

Lady Marcia, No. 11111 (dam Marionette 9391), has a record of 67½ pounds milk in one day, 435 pounds in seven days, 1,602 pounds in thirty days, 7,828 pounds with first calf, 10,922 pounds in one year, 11,543 pounds in three hundred and sixty-five consecutive days.

Marrica, No. 11976 (dam Marionette 9391), record, 6,640 pounds as a 3-year old.

Mamsie, No. 12256 (dam Lady Marcia), has a record of 7,700 pounds in three hundred and sixty-five consecutive days.

Marchwood No. 11104, twelve-months' record, 8,292 pounds.

Marchioness, No. 8489, twelve-months' record, 7,000 pounds.

Monarchness, No. 11201, two-year record, 6,809 pounds.

Monopole, No. 13530, with first calf, nine-months' record, 4,096 pounds.

Myrtlewood, No. 13532, with first calf, 4,993 pounds.

Marwood, No. 14751, record at twenty-eight months, 3,825 pounds.

MARY 2D FAMILY.

Mary 2d, No. 13291, has a record of 70 pounds of milk in one day, 1,500 pounds in thirty days, 9,802½ pounds in one year, 36,911 pounds in five years.

Murrilla, No. 13376 (dam Mary 2d), has a record for twelve consecutive months of 7,333 pounds; averaged for ten years 6,590 pounds.

Matchwood, No. 13474 (dam Murrilla 13376), has a record in six months, as a 3-year old, of 2,491 pounds.

Sport, No. 14753 (grand dam Murrilla 13376), has a record before 2 years of age in four months of 1,284 pounds.

Morrocco, No. 13462 (dam Murrilla 13376), has a record for one year of 8,902 pounds milk; average for six years, 6,900 pounds.

Moro, No. 13464 (dam Morrocco 13462), has a record for one year of 7,000 pounds.

Marjorim, No. 13466 (dam Morrocco 13462), has a record for one year of 7,066 pounds.

Marrion, No. 13463 (dam Morrocco 13463), has a record in one year as a 3-year-old of 5,984 pounds.

Morrocco Dougless, No. 13535 (dam Morrocco 13462), has a record as a 2-year-old in four months of 1,964 pounds.

Myrtell, No. 13467 (dam Moro 13467), has a record as a 3-year-old of 4,440 pounds.

DIANNA FAMILY.

Dianna, No. 9389, bred by Andrew Allen, Montreal, Province of Quebec (dam Miss Dido 9388, sire Royal George 2822). Dianna was a very large, showy cow but a very light milker, never over 5,000 pounds in one year.

Maid of Dartmouth, No. 9390 (dam Dianna 9389), record for one year, 7,416 pounds. This cow took first prize of $100 at Madison Square Garden show in 1887 as a 2-year-old.

Diannalynne, No. 11109 (dam Dianna 9389), record for one year, 9,418 pounds; average record for five years, 8,007 pounds; died with milk fever, March, 1899.

Dartwood, No. 12324 (dam Maid of Dartmouth 9390), has a 4-year-old record of 6,279 pounds.

Dainty Princess, No. 11433 (dam Diannalynne 11109), has a record with first calf at 2 years of age of 7,246 pounds milk; record as a 4-year-old of 8,263 pounds; average for three first calves of 7,743 pounds. Now owned by Alfred J. Taylor, New York City.

Deerfoot, No. 13458 (dam Dainty Princess 11433), record as a 3-year-old of 6,429 pounds.

Record of Ayrshire cows giving 7,000 pounds and upward in twelve consecutive months.

Name.	Herd book No.	Milk.	Name.	Herd book No.	Milk.
		Pounds.			*Pounds.*
Lady Marcia	11111	11,543	Creole	11204	7,953
Queen Mary	6578	11,154	Hersa	11204	7,735
Fernleaf	8397	10,252	Mamsie	12256	7,700
Mary 2d	13291	9,802½	Crowood	11101	7,670
Comla	8396	9,620	Extension	10999	7,632
Diannalynne	11109	9,418	Marionette	9391	7,607
Murrilla	13376	9,333	Lady Briarwood	11434	7,600
Clanwood	11103	9,401	Cherry of Portsmouth	5585	7,445
Morrocco	13462	8,902	Collina	9191	7,421
Dactyl	9198	8,837	Maid of Arles	8395	7,389
Cromorna	11436	8,775	Maid of Dartmouth	9390	7,416
Cadron	10994	8,695	Chevlynn	12325	7,325
Crimson	11207	8,687	Lady Cadora	11975	7,268
Cardinal	11579	8,486	Athwood	11001	7,118
Dott Cadmus	11205	8,772	Durtha	7194	7,115
Marchwood	11104	8,292	Crocus	3400	7,082
Dainty Princess	11433	8,263	Marjorim	13646	7,066
Lady Teazle	6599	8,107	Moro	13464	7,000
Chinchilla	6589	7,972½	Marchioness	8489	7,000

Seven years' milk record.

	Pounds.
1893:	
24 cows and heifers averaged	6,497
7 best averaged	7,711
Best cow	8,364
1894:	
25 cows and heifers averaged	6,337
15 best averaged	6,749
6 best averaged	7,703
Best cow	8,817
1895:	
20 cows and heifers averaged	6,556
5 best averaged	8,050
Best cow	9,309
1896:	
25 cows and heifers averaged	6,444
7 best averaged	7,807
Best cow	8,630

	Pounds.
1897:	
30 cows and heifers averaged	6,570
10 best averaged	8,097
Best cow	10,920
1898:	
21 cows averaged	6,100
7 cows averaged	7,100
1899:	
20 cows and heifers averaged	6,362
18 cows and heifers averaged	6,813
10 cows and heifers averaged	7,253
5 cows and heifers averaged	7,753
Best cow	8,590

A PUREBRED GUERNSEY HERD IN OHIO.

Below are given a few statements from the owner:

Our barns are warm, comfortable, and ample. They are not imposing without, nor elaborate with fixtures within. They have cement floors, which are cleaned twice a day. They are well lighted and ventilated. The cows and all stock over 3 months old are given outdoor exercise every day. The cows are kept out two hours every forenoon and one hour every afternoon in an open barnyard, all protected from the wind. No exception is made on account of storms, unless of cold rains, extreme dry cold making no difference with the rule.

The young cattle are kept out about six hours a day in winter, and have the range of pasture from first to last grass, as do also the cows, with the addition of grain when needed.

There has never been a case of calf cholera on the farm. Abortion we have had, and it has worn itself out in the herd. The herd is now immune to its attacks and has been for two years.

I believe my herd to be free from tuberculosis. I propose to keep them healthy by providing them amply with nature's best safeguards against disease—plenty of pure air, light, and exercise.

Old Homestead herd contains at present about 80 Guernseys, registered or eligible. The service bulls are Homestead's Golden Duke 6906 and Sir Henry of Homestead, also a son of Violet's Duke 4222, and of Grace Fernwood, a daughter of Fernwood Lily's Son. I am breeding the daughters of Homestead's Golden Duke to Sir Henry of Homestead, thus giving them a double cross back to Fernwood Lily's Son, by the half uncle and second cousin route. I expect gratifying results.

I have over 20 daughters of Homestead's Golden Duke, and still have 10 own daughters of Fernwood Lily's Son. We have a few young daughters of Sir Henry of Homestead, and more of his calves on the way.

There are good and poor families of Guernseys, just as there are varying qualities to be found in everything grown or manufactured. The best are none too good to cross with for improvement. Is it not better economy to pay $100 or $200 for a really valuable sire than to buy a doubtful one at half the price?

A CONNECTICUT DAIRY FARM AND HERD OF GUERNSEYS.

The following are some notes on this farm and herd:

This farm comprises about 165 acres, well diversified. Great pains has been taken in clearing this land and preparing it for cultivation, as well as arranging the roads and buildings. The pastures are on the slope of the hills and include much of the wood lots. The stables where the Guernseys are housed are well arranged, commodious, and kept in a cleanly condition. In fact it is a model for simplicity and for the comfort and health of the stock, as well as for the convenience in handling and caring for them. Ample sunlight and ventilation, cement floor that is easily kept sweet and clean, comfortable stanchions, and commodious box stalls characterize the stable. The manure is carried out into a near-by manure pit. Taken as a whole, the arrangement of the barn is an ideal one. The animals do not come in contact with the stored fodder, and all the manure and dirt is removed from near the cattle.

Near this is a storage barn with silo attached. Here all the coarse feed is kept, and in a convenient portion is arranged the grain room.

Situated a little distance from the barn is the dairy building, in which is found all modern dairy appliances for the handling of the milk, cream, and butter, including the separator, aerator, and cooler. The milk, cream, and butter is sold in Naugatuck. The milk and cream is put up in glass bottles properly labeled with the name of the dairy and a guarantee of 5 per cent butter fat.

The butter is securely wrapped in parchment paper, on which is printed a description and guarantee of purity.

This herd is made up of choice Guernseys, and includes such animals as Jessie of Lester Manor 740 (18 pounds butter), Select 2205 (22 pounds 8 ounces butter), Forget-me-not 587, Herald 990, and the Amber and Les Vaux-be-lets strains. To these has recently been added an importation of 9 head, which includes some very promising cows and a fine breeding bull. The heifers are strong, straight-backed, and show great depth and good udder formation.

A very detailed and complete account of each animal's dairy productions is kept. The following one serves as a sample, and represents that of the young cow Princess Irene No. 8050, with her first calf, with a butter record of 434.52 pounds in a year.

Stable blank.

June, 1898. **Princess Irene, 8050.**

	Weight in pounds.		Per cent butter fat.	Milker.		Remarks.
	Morning.	Night.		M.	N.	
1	11	9	5.8	E.	E.	
2	12	10		E.	J.	Ration, 1st to 14th: Hay, 8 pounds; grain mixture, 4 pounds.
3	13	10		E.	J.	
4	13	10		E.	J.	
5	13	9		E.	J.	
6	12	10		E.	J.	
7	12	10		E.	D.	
8	12	9¾		E.	J.	—
9	12	9		E.	J.	
10	13	10		E.	J.	
11	13	10		E.	D.	
12	12	10		E.	E.	Ration, 15th to 30th: Pasture; grain mixture, 4 pounds.
13	11	9½		E.	J.	
14	11	9½		E.	J.	
15	10	11		E.	D.	
16	11	9¾		E.	S.	
17	11½	9¾	6.4	E.	J.	
18	12	9½		E.	J.	—
19	6	11		E.	S.	
20	11	10		E.	S.	
21	10	9		E.	S.	
22	10¼	9		E.	S.	
23	11	8¾		E.	S.	*Grain mixture.*
24	10	9½		E.	S.	Bran 1,200
25	11	8		E.	S.	Gluten meal 300
26	10	8		E.	S.	Rye 300
27	11	8½		E.	S.	Cotton-seed meal 200
28	11	8½		E.	J.	
29	12	9		E.	S.	2,000
30	11½	8¾		E.	S.	
31						
	339¼ 283¾	283¾				
	623					

The stock breeders of the future are those who can show with their animals records of actual dairy performance, that buyers may be more certain of securing pedigree backed by individual excellence.

Type of yearly record sheet for herd.

RECORD OF HERD FOR YEAR 1904.

1904.	Weight of milk.	Butter fat.		Average fat.	Total yield of butter fat.	Total yield of butter 85 per cent fat.	Ration.			Number of mixture.	Cost of ration.
		1st.	15th.				Silage.	Hay.	Grain mixture.		
	Pounds.	*P. ct.*	*P. ct.*	*P. ct.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*		
January	4,386.90	......	......	5.49	241.34	283.92	7,310	3,276	2,022 224	2 3	$61.69
February	7,426.70	......	......	5.34	389.81	458.60	8,060	4,140	2,790 280	2 3	78.98
March	8,527.60	......	......	5.41	459.14	538.87	10,230	5,208	3,720 121	2 3	98.72
April	8,447.80	......	......	5.43	453.24	542.87	9,900	5,040	3,600 60	2 3	94.76
May	8,105.10	......	......	5.20	413.17	486.00	2,350	7,392	3,596 124	2 3	109.69
June	8,199.90	......	......	5.6	454.58	534.43	....	....	2,692 48	2 3	29.59
July	7,597.00	......	......	5.6	421.09	496.37	....	....	2,883	2	30.97
August	6,665.60	......	......	5.6	356.90	419.88	....	....	2,787	2	29.95
September	5,633.90	......	......	5.48	306.07	369.53	....	....	2,519 188	2 3	29.57
October	5,682.30	......	......	5.6	320.95	377.60	....	4,968	2,815 168	2 3	77.14
November	5,527.20	......	......	5.98	308.20	363.35	12,600	5,400	2,745 420	2 3	96.23
December	6,582.70	......	......	5.75	346.08	403.50	14,280	6,324	3,194 624	2 3	113.45
Total	82,782.70	......	......	5.54	4,470.57	5,274.92	64,730	41,748	37,620	......	850.74

Type of yearly record sheet for single cows.

LADY MALENA, 14639.

1904.	Weight of milk.	Butter fat.		Average fat.	Total yield of butter fat.	Total yield of butter 85 per cent fat.	Ration.			Number of mixture.	Cost of ration.
		1st.	15th.				Silage.	Hay.	Grain mixture.		
	Pounds.	*P. ct.*	*P. ct.*	*P. ct.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*		
January[a]	....	......	......	......	....	....	....	....	....	......	......
February	790.70	5.0	5.0	5.0	39.53	46.51	580	348	172 60	2 3	$6.35
March	836.80	4.8	5.2	5.0	41.84	49.22	620	372	248	2	6.64
April	740.70	5.2	4.9	5.5	40.74	47.93	600	360	240	2	6.42
May	715.00	4.4	5.0	4.7	33.61	39.53	150	528	248	2	7.57
June	727.20	5.9	6.4	6.15	44.72	52.62	....	....	210	2	2.26
July	677.90	6.0	5.2	5.6	37.96	44.66	....	....	217	2	2.33
August	620.70	5.0	5.6	5.3	32.90	38.70	....	....	217	2	2.33
September	515.10	5.4	5.4	5.4	27.82	32.72	....	....	210	2	2.26
October	477.90	6.0	5.9	5.95	28.44	33.45	....	372	248	2	6.01
November	396.00	5.9	6.2	6.05	23.96	28.19	900	360	240	2	6.72
December	379.30	6.3	6.5	6.4	24.28	28.56	930	372	248	2	6.94
Total	6,877.30	......	......	5.55	375.80	442.09	3,780	2,712	2,558	......	55.83

[a] Calved January 27, 1904. (First calf, heifer.)

A CALIFORNIA DAIRY RANCH.

The breeding, feeding, and management of a herd of 100 milking cows, as reported by the superintendent, is as follows:

This herd of Holstein-Friesian cattle was estabished three years ago (1900) by purchasing, after careful selection, some of the best individuals of the leading families of the breed, regardless of cost.

Our aim in breeding is to produce larger animals with strong constitutions and true Holstein type. We select males the product of animals with large official records and themselves as near the ideal type as we can get them—vigorous animals with medium-sized head, fine neck, large heart girth, straight back; long, broad, level rump; good quarters, long tail; large, prominent mammary veins, and good-sized, well-placed rudimentary teats. We select females whose dams and grand dams have made official records, themselves also of good, strong constitution, feminine in appearance, and of good, quiet disposition, with large heart girth, well-sprung ribs, large abdomen, straight back, broad hips; long, broad, level rump, with roomy pelvis, well-shaped escutcheon; a soft udder of large capacity, extending well forward and held well up, with teats of good size placed wide apart, and with large, crooked mammary veins, extending well forward.

With such animals we hope to accomplish our aim—that of producing first-class dairy cattle. The young stock in the pastures prove that we are not working in vain. The herd consists of 300 head of thoroughbreds (all ages). The cows are bred to drop calves in the fall, commencing October 1. This makes the dry season in the latter part of summer, when grass is drying up, the weather warm, and flies most troublesome.

When a cow is due to calf, she is placed in a paddock adjoining the cow barn and a close watch kept over her. When the calf is born the cow is placed in a roomy and well-bedded box stall in the cow barn, and the calf is removed to the calf barn; the calf is never allowed to suck the dam.

The cow is now given a physic consisting of 1¼ pounds Epsom salts and 2 ounces ground ginger, after which she is milked dry. We feed only hay and mangels the first three days; after that time we commence feeding grain, starting with a few pounds and gradually increasing to 10 or 15 pounds per day, together with 20 pounds mangel-wurzels and all the meadow hay the cow will eat up clean. The grain ration consists of rice meal, ground barley, wheat bran, and oil cake, and is always fed dry.

The cows are kept on pasture from March till they come fresh in the fall and receive no grain while on pasture; after calving in the fall they are kept in the stable during the night and fed three times a day.

The cows are milked three times a day during the winter months, but when turned on pasture in spring we milk only twice. We find that cows drop less in milk production by making the change from milking three times a day to twice a day when on pasture. If the change of milking is made on dry feed in the stable the cows will drop from 10 to 15 pounds of milk per day, while on pasture the loss is nominal. At milking time each cow's milk is weighed by the herdsman, a composite sample is taken of each cow's milk produced on the 1st and 15th of each month, and this is tested by the Babcock test and an accurate account is kept of same.

The calves, as before stated, are removed from the dams at birth to a roomy, well lighted and ventilated calf barn; they are marked with ear tags and photographed, and the ear-tag numbers and photographs are entered in the herd book. They are tied in small stalls and fed whole milk three times a day for two or three weeks, according to the condition of each individual; they are then put on skim milk gradually and at the same time fed a handful of ground barley or rice meal (dry). At 4 weeks old they receive only skim milk, grain, fine cut carrots, and all the hay they will eat. They are then put in box stalls, where they run loose; at 2 months old they have in favorable weather the run of small paddocks adjoining the barn. The milk is always fed at a temperature of about 90°.

We tie the calf up for the first few weeks. This enables us better to watch it, and if it gets scours or other ailment we will notice it right away and have a chance to check it in its first stage.

We have never had any diseases among our stock; less than 5 per cent of our calves have died, and while we have some very large producers among the cows we have never had one case of milk fever.

The average number of cows milked during the past year was 100, including 41 2-year-olds with the first calf. By looking over our accounts I find that they have produced from October 1, 1902, to August 1, 1903, an average of 10,188.8 pounds of milk and 366.768 pounds of butter (80 per cent fat) per cow.

The Pierce Land and Stock Company was the first to adopt official testing on the Pacific coast, and 37 tests have been conducted during the last season by representatives of the University of California. Some of them are as follows:

Records for seven days of a few cows at Riverside ranch.

Name of cow.	Age.	Milk in seven days.	Butter (80 per cent fat).	
	Years.	*Pounds.*	*Lbs.*	*oz.*
Romeo Aggie Acme	7	431	26	11
Fidessa	4	570	25	0
Mattie Clayo Aggie 2d	7	499	23	15
Minnewawa Louise	3	474	18	5
Do	4	510	22	9
De Natsey Baker	2	401	17	7
Do	3	523	22	0
Ruda 2d Belle	7	401	20	9
Minnewawa Lily	4	364	20	4
De Kol of Valley Mead	4	435	19	9
Wynette Princess	2	391	18	7
Drusa	5	399	18	4

Both Fidessa and De Natsey Baker made thirty-day official records. Fidessa produced 2,392 pounds of milk and 92 pounds 5 ounces of butter, and De Natsey Baker, as a 2-year-old, produced 1,689 pounds of milk and 70 pounds 10 ounces of butter, this being the world's thirty-day official butter record for a 2-year-old.

Besides the above the company has lately purchased 8 advanced register cows in New York State, which have made the following seven-day official records, under supervision of representatives of Cornell:

Records for seven days of cows purchased for Riverside ranch.

Name of cow.	Age.	Yield of milk.	Yield of butter.	
	Years.	*Pounds.*	*Lbs.*	*oz.*
Netherland Land Moore	5	511	23	11
De Kol Konigen Van Friesland	8	440	20	11
Nicola De Kol	6	....	22	4
Drosky Artis	6	460	20	4
Griselda of Brookfield	6	511	20	3
Pauline Sadie De Kol	5	367	15	2
Reganeta Clothilde 2d	2	312	13	2
Rhoda De Kol Colantha	2	353	12	6

The bulls in breeding season are kept in box stalls in the cow barn, to each of which is connected a small yard; they are fed a grain ration rich in protein, together with hay and mangels. All the animals in the stables are curried and brushed daily, handled with kindness, and the animals, old and young, when loose in the pastures, will allow persons to approach and handle them without fear.

HERD OF 75 HOLSTEIN COWS ON A 250-ACRE FARM IN NEW YORK.

The following description of this herd is by the owner:

I have several dairies, in two of which I employ a superintendent at a fixed salary per annum, supplying everything requisite for the farm. Some other farms under my charge are worked on the tenant system—that is, I lease to tenants farms stocked with cows, and then a division of three-fifths and two-fifths is made from the total revenue derived from the dairy, as well as from pork, calves, veal, etc., the milk being delivered at a cheese factory. No milk is produced in the winter months on the tenant farms.

I might give you the result obtained during 1902 from a farm of 250 acres, over which I have a superintendent. This is a dairy of 75 pure-bred Holstein-Friesians, which are milked twice a day, a dairy in which it is my intention to have the cows in milk through the year, with the exception that on an average the cows run dry six weeks. It is the intention that the cows shall not calve during the months of June, July, and August, but throughout the other nine months of the year. In addition to the cows, I have ordinarily about 30 young stock, the herd bulls, and 6 or 8 horses for farm purposes. About $800 worth of grain, outside of that raised on the farm, is purchased, being chiefly malt sprouts, as I find that as a source of protein they are perhaps the cheapest of all feeds in this locality. Hay and ensilage are the feeds for the winter, and I intend to have a balanced ration of 6 to 1. On this particular farm I have but very small pasturage, enough possibly for the stock for thirty or forty days; therefore during the months of July and August I depend upon clover, ensilage, or peas and oats, the last being preferred.

In looking up my records I find that in 1902 the dairy produced 428,859 pounds of milk, aside from that used in the family and that used for the manufacture of butter for family purposes. Possibly 450,000 pounds of milk might be considered a fair estimate for last year. From the 428,859 pounds of milk I received $4,685.66. From the sale of calves and pork I received $1,600 additional.

There are but very few creameries or butter factories in this locality, the county being almost wholly devoted to the manufacture of cheese. The milk from the farm is delivered for six or six and a half months at the cheese factory, and during the remainder of the year at the condensed-milk factory.

I may say that this record of milk product from the dairy of Holsteins is not at all large. I have no doubt that, if the effort were made, the yield of entire herd could be increased fully 25 per cent. I have sold the calves to the dairymen through this section of the country with a view to improving the dairy stock of this locality, and have sold them all at dairymen's prices, disposing of them when from 2 to 6 weeks old, the animals being entitled to registry, but without registering them.

Some years ago (in 1881 or 1882), when I first began breeding the Holstein stock, I made some tests for milk yield, as well as butter yield, and I believe that I made the first record for the Holstein for butter yield, one cow producing 23½ pounds of butter in seven days, and 96 pounds 12 ounces in thirty days, with an average of 80 pounds of milk per day. I had several cows that exceeded 80 pounds of milk.

ANOTHER HOLSTEIN HERD IN NEW YORK.

Notes on the management of this herd follow:

The milk of the herd is taken to our own cheese factory and creamery, where it is weighed each day, and a sample is also taken and a composite test is made twice a month, which gives us the amount of butter fat for the whole herd and the amount of butter on 80 per cent basis as used in the World's Fair test and formerly by the Holstein Association.

About half of the cows were 4 years old and under each year. We aim to have a number come fresh in the fall and winter, as they will give nearly as much milk in June as those coming fresh later. All calves are taken from their dams and taught to drink at once if they are desirable for our dairy or for stock purposes. We purchase new blood by getting superior-bred bulls, and inbreed but very little. The stock is strong and healthy. The cows run in the pasture in summer and are fed some grain, when pasture fails, until the corn is ready. We feed ensilage, clover hay, and grain raised on the farm in connection with brewers' grains (dried) and bran. We aim to grow young animals as fast as we can without feeding new milk after 3 weeks old. We think it a good plan to breed one family of Holsteins with now and then an outcross.

We established the herd of Holsteins in 1888. The young bulls are sold for stock bulls. Heifers commence to give milk at 2 years old.

Five years' records.

Year.	Number of cows.	Total yield of milk.	Total yield of butter fat.	Total yield of (80 per cent fat) butter.
		Pounds.	*Pounds.*	*Pounds.*
1898	36	273, 856	9, 896	12, 370
1899	30	251, 431	8, 627	10, 784
1900	31	247, 030	8, 577	10, 721
1901	35	285, 833	9, 740	12, 175
1902	33	257, 071	8, 774	10, 926
Average	33	7, 971	276	345

MILK AND BUTTER-FAT RECORDS OF PUREBRED HERDS FOR SERIES OF YEARS.

Credit is largely due to the Ayrshire breeders for the records included under this heading. Elsewhere in this bulletin is given a detailed description of some of the herds making these records. The long series of records, one of which has been continuous for twenty-five years, show the possibilities of maintaining a herd at a high standard of production, this being done largely by raising the best heifer calves from the best cows.

Milk and butter-fat records of purebred herds for series of years.

AYRSHIRE.

Owner.	State.	Number of cows.	Year.	Average milk yield.	Average fat in milk.	Average yield of butter fat.	In milk.
				Pounds.	*Per cent.*	*Pounds.*	*Days.*
L. S. Drew	Vermont	11	1887	6,182			
		11	1888	6,020			
		11	1889	5,849			
		11	1890	6,010			
		17	1891	6,003			
		15	1892	6,015			
		[a] 23	1893	5,628	3.97	223.5	265
		[a] 19	1894	4,279	4.11	175.9	231
		[a] 24	1895	5,347	4.32	231.0	286
		[a] 20	1896	5,974	4.20	250.9	285
		[a] 19	1897	6,678	4.06	271.1	289
		[a] 20	1898	6,402	4.09	261.8	293
		[a] 24	1899	6,741	4.02	270.9	294
		[a] 27	1900	5,583	4.24	236.7	272
		[a] 23	1901	6,183	3.94	243.6	286
		[a] 21	1902	6,328	3.96	250.6	292
		[a] 23	1903	5,911	3.93	232.3	283
		[a] 22	1904	5,766	3.97	228.9	282
Average				5,939		239.8	
Eugene Ham	New York	12	1885	4,683			
		14	1886	5,520			
		21	1887	5,448			
Average				5,217			
C. H. Hayes & Son	New Hampshire	18	1886	5,942			
		17	1887	6,321			
		35	1890	5,146			
		24	1893	6,497			
		25	1894	6,337			
		20	1895	6,556			
		25	1896	6,444			
		30	1897	6,570			
		21	1898	6,100			
		20	1899	6,362			
Average				6,227			
J. D. W. French	Massachusetts	3	1874	6,934			
		11	1875	6,218			
		12	1876	5,310			
		12	1877	5,343			
		10	1878	5,316			
		13	1879	5,222			
		13	1880	5,720			
		17	1881	5,041			
		18	1882	5,083			
		20	1883	5,672			
		16	1884	5,934			
		20	1885	6,037			
		16	1886	5,445			
		16	1887	5,300			
		16	1888	5,380			
		16	1889	5,437			
		16	1890	5,513			
Average				5,583			
J. De Witt Krebs	New York	4	1884	6,732			
		8	1885	6,386			
		14	1886	5,568			
		16	1887	4,994			
		17	1888	5,456			
		16	1889	5,354			
Average				5,748			

[a] Includes 2-year-old heifers in each case.

Milk and butter-fat records of purebred herds for series of years—Continued.

AYRSHIRE—Continued.

Owner.	State.	Number of cows.	Year.	Average milk yield.	Average fat in milk.	Average yield of butterfat.	In milk.
				Pounds.	*Per cent.*	*Pounds.*	*Days.*
C. M. Winslow	Vermont	10	1880	6,035			
		11	1881	6,176			
		9	1882	6,672			
		15	1883	6,168			
		16	1884	6,814			
		11	1885	7,025			
		16	1886	6,238			
		16	1887	5,782			
		16	1888	6,356			
		15	1889	5,836			
		17	1890	5,480			
		14	1891	5,971			
		12	1892	6,249	4.23	264.3	
		10	1893	6,233	4.04	251.7	
		19	1894	6,455	4.01	258.8	
		17	1895	6,765			
		16	1896	7,289	4.0	291.5	
		15	1897	7,228			
		19	1898	6,956			
		17	1899	6,180			
		22	1900	7,189	3.74	268.9	
		15	1901	6,711	3.83	257.2	
		11	1902	6,600	3.87	255.4	
		20	1903	6,305	3.64	229.5	
		15	1904	7,183	3.71	266.5	
Average				6,476		260.4	
G. H. Yeaton	New Hampshire	12	1893	6,125	4.02	246.2	
		24	1894	5,501	4.24	233.2	
		22	1895	7,144	4.03	287.9	
		25	1896	7,006	3.99	279.5	
		23	1897	7,164	3.92	280.8	
		20	1898	7,370	3.88	285.9	
		20	1899	7,206	3.96	285.4	
		22	1900	7,558	3.88	293.3	
		24	1901	7,196	3.86	277.8	
		20	1902	7,392	3.87	286.1	
		18	1903	6,637	3.88	257.5	
		18	1904	7,111	3.62	257.4	
Average				6,951	3.92	272.6	

BROWN SWISS.

Owner.	State.	Number of cows.	Year.	Average milk yield.	Average fat in milk.	Average yield of butterfat.	In milk.
E. M. Barton	Illinois	16	1896	6,812	4.09	278.6	
		20	1897	6,503	3.64	236.7	
		16	1898	7,813	3.94	307.8	
		22	1899	6,785	3.95	268.0	
Average				6,978	3.91	272.8	

GUERNSEY.

Owner.	State.	Number of cows.	Year.	Average milk yield.	Average fat in milk.	Average yield of butterfat.	In milk.
Geo. C. Hill & Son	Wisconsin	12	1893	6,199.6	5.28	327.6	
		5	[a]1899	6,845.4	5.67	389.2	
		5	[a]1900	7,660.7	5.58	421.8	
Average				6,901.9	5.50	379.5	
Levi P. Morton	New York	[b]62	1892	6,119.8			
		[b]83	1896	5,240.0	5.08	266.2	
		[c]35	1898	7,689.0	5.73	440.6	
		5	[a]1899	7,561.6	5.24	386.4	
Average				6,652.6		364.4	
H. McK. Twombly	New Jersey	15	1895	6,626.0	5.26	348.3	
		14	1897	6,504.3	5.05	328.5	
		20	1898	6,490.0	5.24	339.8	
		28	1898	6,254.0	5.16	322.8	
Average				6,468.6	5.18	334.8	

---

[a] Home butter test.

[b] Cows and heifers.

[c] Cows.

Milk and butter-fat records of purebred herds for series of years—Continued.

HOLSTEIN.

Owner.	State.	Number of cows.	Year.	Average milk yield.	Average fat in milk.	Average yield of butterfat.	In milk.
				Pounds.	*Per cent.*	*Pounds.*	*Days.*
S. Mather & Sons	New York	36	1898	7,607.1	3.61	274.9	
		30	1899	8,381.0	3.43	287.6	
		31	1900	7,968.7	3.47	276.7	
		35	1901	8,166.6	3.41	278.3	
		33	1902	7,790.0	3.41	265.9	
Average				7,982.7	3.47	276.7	
D. J. Wood	New York	32	1896	[a]7,365.0			
		36	1897	[a]7,578.0			
		34	1898	[a]7,613.0			
		32	1899	[a]7,945.0			
		32	1900	[a]8,996.0			
		32	1901	[a]7,644.0			
		34	1902	[a]6,507.0			
Average				7,664.0			

JERSEY.

Owner.	State.	Number of cows.	Year.	Average milk yield.	Average fat in milk.	Average yield of butterfat.	In milk.
A. E. Stevens	Washington	12	1894-5	6,499.6	4.81	312.6	
		11	1895-6	6,110.0	5.26	321.4	
		12	1896-7	6,323.7	5.58	352.8	
		12	1897-8	5,964.5	5.60	334.0	
Average				6,224.4	5.30	320.2	
M. H. Olin	New York	34	1896-7	6,367.0	4.95	315.2	
		26	1897-8	6,728.0	5.01	336.9	
		23	1898-9	6,083.0	5.10	310.2	
Average				6,392.6	5.00	320.7	

[a] Besides milk fed to calves and used by family.

MILK AND BUTTER-FAT RECORDS OF SINGLE PUREBRED COWS FOR ONE YEAR.

The value of accurate yearly records of the dairy performance of purebred cows can hardly be overestimated. These records are indispensable in determining the profit of a cow and her value from the breeder's standpoint.

We are able to include under this heading a large number of yearly records representing the principal dairy breeds, official records being used as far as possible. These data will serve to answer the question frequently asked: "How much product of milk and butter can be expected from cows of the different breeds?" Naturally, with cows representing different families, kept under various conditions of soil and climate and treated very differently as to food and management, there is a wide variation in the yield. An average of the records presented, however, should throw some light on the question.

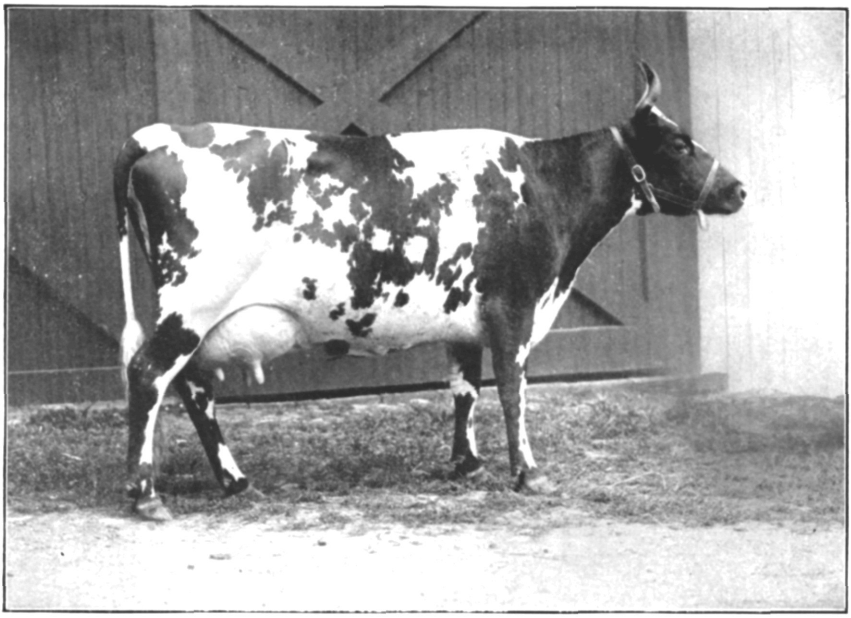


FIG. 1.—IMP. FLORA 3D OF BONSHAW 15575. PUREBRED AYRSHIRE.

Record of 11,532 lbs. milk in 1902; 10,627 lbs. milk in 1903.

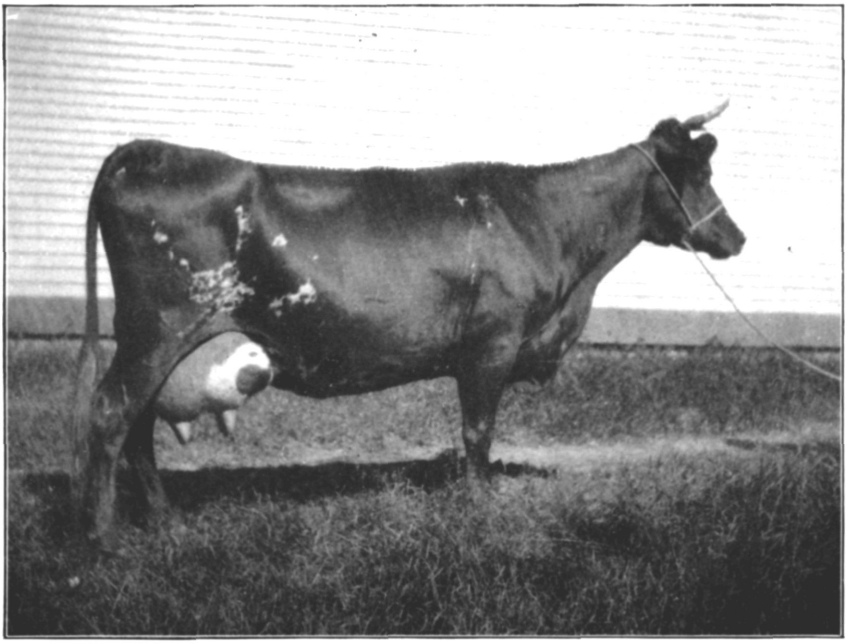


FIG. 2.—MISS OLLIE 12039. PUREBRED AYRSHIRE.

Best year's record 9,924 lbs. milk, 440.6 lbs. butter fat, 4.44 average per cent of fat; best month's record 77.2 lbs. butter fat; best week's record 364.2 lbs. milk, 15.3 lbs. butter fat, 4.2 average per cent of fat; best day's record 56 lbs. milk, 2.57 lbs. butter fat, 4.59 average per cent of fat. Average for 6 years 8,168 lbs. milk, 355.4 lbs. butter fat, 4.35 average per cent of fat.

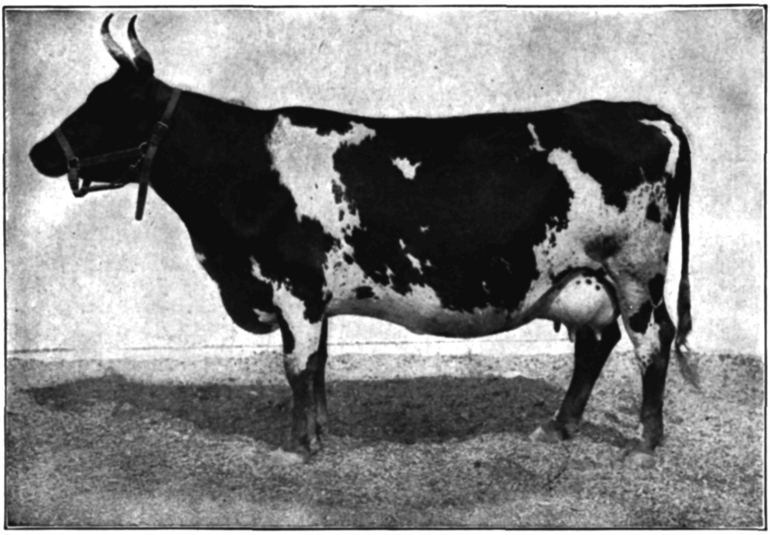


FIG. 1.—DURWOOD 12680. PUREBRED AYRSHIRE.

Official record 10,701 lbs. milk, 433.7 lbs. butter fat, in 1 year.

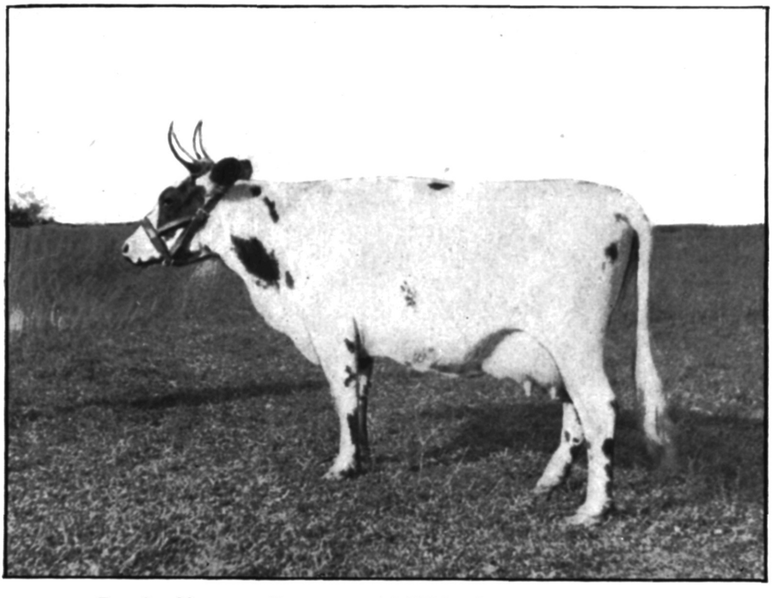


FIG. 2.—MYSIE OF BARCHESKIE 14952. PUREBRED AYRSHIRE.

Year's record 9,228 lbs. milk, 3.75 per cent fat, 346.1 lbs. butter fat.

RECORDS OF PUREBRED AYRSHIRE COWS.

The following table contains the records of a large number of Ayrshire cows:

Milk and butter-fat records of single purebred Ayrshire cows for one year.

Owner.	State.	Name of cow.	Age.	Milk yield.	Fat in milk.	Yield of butter fat.
			Yrs.	*Pounds.*	*Per ct.*	*Pounds.*
C. M. Winslow	Vermont	Acelista	10	11,277	3.46	390.0
		Rose Clockston	5	8,932	3.37	301.0
		Miss Mabel D	10	7,973	3.49	278.3
		Lulu Avondale	4	6,439	4.41	284.0
		Rena Myrtle	.....	12,172	3.85	468.6
		Acelista	.....	10,034	3.65	366.2
		Rose Veritas	.....	9,301	3.88	360.9
		Linda Douglas	.....	9,388	3.82	358.6
		Iola Lorne	.....	8,806	3.81	335.5
		Acme 5th	.....	8,183	4.04	330.6
		Rose Clenna	.....	7,988	4.07	325.1
		Rose Cleon	.....	7,929	3.84	304.5
		Rose Carentine	.....	8,379	3.54	296.6
		Rose Erica	.....	8,863	3.20	283.5
		Atalanta	.....	7,312	3.68	269.1
		Rose Deruth	.....	7,918	3.38	267.6
		Lady Avondale 3d	.....	7,622	....	....
		Rosa 3143	.....	7,562	....	....
		Rosella 4497	.....	7,450	....	....
		Avona 4494	.....	8,476	....	....
		Ruth 4816	.....	10,219	....	....
		Rebekah 4496	.....	8,338	....	....
		Roxie 4498	.....	9,191	....	....
		Acorn 4492	.....	8,031	....	....
		Ross 4909	.....	7,640	....	....
		Acme 5075	.....	8,436	....	....
		Myrtle Dell 3854	.....	8,068	....	....
		Rose Eola 8510	.....	10,323	....	....
		Rosalena 8502	.....	7,517	....	....
		Miss Rose 8540	.....	7,760	....	....
		Rose Deross 10347	.....	10,645	4.61	490.3
H. R. C. Watson	New York	Duchess of Smithfield	.....	10,748	....	....
		Betty Lightfoot	.....	9,394	....	....
		Bonnie Nannie	.....	7,492	....	....
		Lady Webb	.....	7,235	....	....
		Lady Essex 4th	.....	8,793	....	....
		Alline Douglas	.....	7,932	....	....
Obadiah Brown	Rhode Island	Manton Queen 4th	.....	12,162	....	....
Kansas State Agricultural College.	Kansas	Star of Hillview	.....	8,861	4.07	361.0
		Queen of Ayr 1766	.....	10,632	....	....
		Queen of Ayr 5th 4466	.....	11,801	....	....
J. J. Hill	Minnesota	Nora of North Oaks	.....	8,189	4.14	339.0
		Canary	.....	8,740	3.67	320.8
		Hazel Newcomb	.....	7,777	3.90	303.3
		Countess of North Oaks	.....	8,592	3.49	299.9
		Myriel Mar	.....	7,318	3.87	283.2
W. S. Stevens	Vermont	Kittie Ozra	.....	6,850	3.88	265.8
		Rose Ladew	.....	6,318	3.72	235.0
		Rose Elwin	.....	6,066	3.60	218.4
		Rose Onway	.....	5,183	3.22	196.9
		Acmerene	.....	5,103	3.71	189.3
L. C. Spaulding & Son.	Vermont	Rose Drummond	.....	9,029	3.28	296.2
		Nonpareil's Myra	.....	8,178	3.51	287.1
		Simplicity	.....	6,642	3.81	253.1
		Brownie Douglas	.....	6,056	4.05	245.2
		Acme Douglas	.....	6,336	3.57	226.2
		Polly of Mauchline 12299	.....	9,321	3.90	363.5
W. V. Probasco	New Jersey	Rosy Ayer 13995	6	7,947	4.40	349.8
		Roma 14197	5	9,073	4.00	362.9
		Mysie of Barcheski 14952	7	9,228	3.75	346.1
		Petrina of Woodview 17430	2	7,518	4.54	341.1
		Felicia of Woodview 17431	2	7,056	4.24	299.2
		Lilly Ayer 13994	4	8,477	4.23	358.6
		Hornell Girl 13993	4	7,208	4.41	317.9
		Pearl Clyde 13991	5	8,286	4.19	347.2
		Katy Did 15242	3	7,299	4.29	313.1
		Floe 16700	2	7,986	4.21	335.9
G. H. Yeaton	New Hampshire	Lady Fox 9669	.....	12,299	4.35	534.9
		Lukolela 12357	.....	12,187	3.82	465.4
		Meewe 11130	.....	11,252	4.32	486.0
		Xoa 11469	.....	10,155	4.01	407.1
		Miss Olga 13984	.....	10,096	4.17	420.9

Milk and butter-fat records of single purebred Ayrshire cows for one year—Continued.

Owner.	State.	Name of cow.	Age.	Milk yield.	Fat in milk.	Yield of butter fat.
			Yrs.	*Pounds.*	*Per ct.*	*Pounds.*
G. H. Yeaton	New Hampshire	Biona 12351		10,024	3.53	354.0
		Yuba Lass 12353		9,635	3.73	359.1
		Annie Bert 9670		9,613	3.72	357.4
		Yucca 11470		9,496	4.01	380.6
		Olah 11471		9,640	3.66	353.1
		Gano 10664		8,636	3.69	318.9
		Ponemah 13983	8	8,633	4.66	402.0
		Mexic 11131		8,581	4.18	359.1
		Ouija 11882		8,561	3.81	326.6
		Freda 11134		8,457	3.67	310.3
		Uarda 15135	6	8,228	4.06	334.3
		Oke Mar 13307	5	8,129	4.00	324.9
		Gladiola 12352		8,054	3.63	292.3
		Okeoeola 8415		8,023	3.97	318.9
		You're Mine 15133	6	7,990	3.34	266.6
		Wallula 9726		7,926	4.21	333.4
		Gebic 13981	6	7,846	3.93	308.0
		Ouilma 16561	3	7,547	3.76	284.0
		Lady Crescent 11880		7,539	4.26	321.4
		Jeanette Guelph 9673		7,470	3.81	284.6
		Rayn 12358		7,413	4.05	300.0
		Iona S. 12350		7,402	3.80	281.1
		Creamer 15137	2	7,335	4.29	314.6
		Olo 15136		7,322	3.76	275.1
		Clem 11135		7,227	4.44	320.6
		Molly Meade 10661		7,139	4.07	290.3
		Maumee 16566	3	7,060	4.00	282.3
H. Cook	Ohio	Inez Douglas 14554		8,942	4.59	410.4
J. P. Buckley	Maine	Mexic		10,339	3.55	366.9
		Rose T. 3d		8,922	4.00	356.6
		Ruth Corbetta		8,729	4.10	358.3
		Snow Girl		8,238	3.80	312.9
		Phronsie		6,872	4.40	302.6
		Portland Girl		6,713	3.88	260.6
G. C. Clark	New Hampshire	Durtharlynne 12698		12,000		
Melrose Farm	Virginia			7,097		
E. J. Fletcher	New Hampshire	Cad's Victorine 14695		6,967	4.24	295.4
		Collinwood 11404		8,215	3.79	311.3
		Banjo Music 13527		7,955	4.10	326.1
		Bell Nixon 14705		9,383	3.85	361.2
		Himona 13032		8,765	4.29	376.0
		Cad's Beauty 13606		8,702	4.39	382.0
		Durwood 12680		10,701	4.05	433.7
E. F. Pember	Maine	Iris of the Plains 12491		13,850		
		Rose Ladye 11158		8,158		
A. S. Tubbs	New York	Dahlia 5th 4329		10,277		
		Dahlia 2d 2201		7,629		
		Joan Douglas 5982		7,454		
		Josie Douglas 5980		8,592		
		Jeanette Douglas 8094	2	7,129		
		Joanna Douglas 8098		7,696		
		Celia Douglas 10264		7,261		
		Leda Belle 5981		8,784		
		Jane Garfield 5217		8,274		
		Jane Douglas 5983		8,641		
		Viola Douglas 9083		7,324		
		Lady Purity 13137	2	6,478		
		Vinewood Princess 8097		7,489		
		Jenette Peerless 10267		9,421		
		Jane Peerless 10890		7,178		
		Juliette Peerless 10887		7,492		
		Leda Peerless 10274		7,961		
		Joanna Rosewood 10880		7,823		
		Cora Rosewood 10889		7,113		
		Jereene Rosewood 10886		7,561		
		Letta Rosewood 10888		8,227		
		Cora Douglas 9086		7,014		
		Vinewood Queen 8092		10,026		
L. S. Drew	Vermont	Miss Ollie 12039	8	9,924 8,870	4.44 4.43	440.6 392.9
		Pride of Burlington 11932	10	8,623	3.60	310.4
		Miss Ollie 3d 14887	6	6,335	4.58	289.9
		Lady Watson 12644	9	7,600	3.97	301.7
		Aunt Abbie 13220	4	8,171	4.22	344.8
		Sheba 11931	7	9,043	4.11	371.7
		Roanette 11476	10	8,556	3.94	337.1
		Printsteps 8th 12643	6	8,404	3.89	326.9
		Robinia Shelburne	5	6,620	4.04	267.4
		Victorine 4th	4	6,510	4.21	274.1

Milk and butter-fat records of single purebred Ayrshire cows for one year—Continued.

Owner.	State.	Name of cow.	Age.	Milk yield.	Fat in milk.	Yield of butter fat.
			Yrs.	*Pounds.*	*Per ct.*	*Pounds.*
L. S. Drew	Vermont	Shelba	7	9,043	4.11	371.7
		Lady Sears	9	8,189	4.06	332.5
		Pink Conley 3d	6	7,157	3.70	264.8
		Victorine 2d	6	5,680	4.56	259.0
		Nancy Rhea	5	6,442	4.06	261.6
		Hazel B 4th	3	6,016	4.39	264.1
		Nancy B 2d	7	9,096	3.90	354.8
		Sadie Tascott	7	7,633	4.14	316.0
		Little Nell	8	7,670	3.98	305.2
		Hazel B	10	8,210	4.10	336.6
		Minnehaha	9	7,610	4.03	306.7
		Nett 3d	6	9,538	3.88	370.1
J. De Witt Krebs	New York	Favorite 2d 2373	.....	8,113	....	....
		Maid of Walkill 6376	.....	7,829	....	....
		Favorite 3d 6371	.....	8,725	....	....
		Rossie 7208	.....	7,063	....	....
		Mistress Dolly 5956	.....	8,941	....	....
		Greta Belle 8689	.....	7,700	....	....
		Myrella 8690	.....	7,028	....	....
		Favorite 5th 6374	.....	7,893	....	....
		Hugo Lassie 7721	.....	7,187	....	....
C. H. Hayes & Son	New Hampshire	Crocus 3400	12	7,082	....	....
		Queen Mary 6578	.....	11,154	....	....
		Lady Teazle	.....	8,322	....	....
J. D. W. French	Massachusetts	Roxanna 1861	.....	8,183	....	....
		Roxanna (average for twelve years).	.....	6,011	....	....
		Rose 743	.....	8,409	....	....
		Roxanna 5th 4606	.....	9,671	....	....
C. H. Hayes & Son	New Hampshire	Lady Marcia 11111	.....	11,543	....	....
		Fernleaf 8397	.....	10,252	....	....
		Mary 2d 13291	.....	9,802	....	....
		Comla 8396	.....	9,620	....	....
		Diannalynne 11109	.....	9,418	....	....
		Murrilla 13376	.....	9,333	....	....
		Clanwood 11103	.....	9,401	....	....
		Morrocco 13462	.....	8,902	....	....
		Dactyl 9198	.....	8,837	....	....
		Cromorna 11436	.....	8,775	....	....
		Cadron 10994	.....	8,695	....	....
		Crimson 11207	.....	8,687	....	....
		Cardinal 11579	.....	8,486	....	....
		Dott Cadmus 11205	.....	8,772	....	....
W. G. Tucker	New York	Irene Wells 7899	7	9,245	....	....
		Rosy Miller 6571	13	7,254	....	....
		Glasgow Beauty 2d 10470	1½	5,927½	....	....
		Princess Aldine 7815	10	14,200	....	....
		Myrta 8261	6	7,120	....	....
		Carrie Belle 8612	9	7,103	....	....
		Aldine 7704	14	9,282½	....	....
		Irene Wells 2d 10047	3	7,003½	....	....
		Catharine Duncan 8367	7	9,090½	....	....
		Rosalind Duncan 8374	6	10,181	....	....
		Calista 10049	2½	6,000	....	....
		Scotch Ivy 9567	4	6,668	....	....
		Permelia 9565	4	6,227	....	....

RECORDS OF BROWN SWISS COWS.

In the table which follows are given a number of records of Brown Swiss cows:

Milk and butter-fat records of single purebred Brown Swiss cows for one year.

Owner.	State.	Name of cow.	Age.	Milk yield.	Fat in milk.	Butter-fat yield.
			Yrs.	*Pounds.*	*Per cent.*	*Pounds.*
E. M. Barton	Illinois	Nancy 465	.....	9,925.0	4.45	441.6
		Sarnen 715	12	8,061.0	4.35	350.4
		Liebfrau 538	13	6,866.0	3.88	266.4
		Bettschard's Laubi 717	11	10,750.0	3.92	421.6
		Flawyl 721	.....	9,067.0	4.09	371.3
		Julia B. 681	.....	8,380.0	3.72	312.2
		Beinwyl 720	.....	10,966.0	4.06	445.4
		Lucy B. 752	.....	8,868.0	3.48	308.8
		Kaiserin 850	.....	10,295.0	3.89	400.0
		Rosebud Blanc 864	.....	7,121.0	4.39	312.8
		Stiefmutterchen 851	7	9,624.0	3.99	384.0
		Sunflower 1059	.....	9,500.0	4.50	428.0
		Gelten 712	.....	10,741.0	3.80	408.1
		Tess 853	.....	8,903.0	4.49	400.0
		Nicola 927	.....	8,867.0	4.27	378.4
		Geraldine	.....	6,744.0	4.09	275.8
		Biber	10	8,948.0	3.87	346.4
		Docile	10	6,950.0	4.30	298.8
		Mollie Garfield	.....	8,115.0	4.60	373.3
		Ulrich's Schoeni	.....	8,383.0	4.20	352.0
		Brunig	.....	9,717.0	3.43	332.8
		Sophy	4	7,357.0	3.44	252.9
Mich. Agricultural College.	Michigan	Becky 854	.....	9,655.3	3.77	364.0
		College Becky 1859	.....	10,156.2	3.85	391.1
		College Becky 2d 1860	.....	9,477.8	3.78	358.3
		College Bravura 858	.....	8,120.1	4.29	348.4

RECORDS OF DEVON COWS.

The records of a number of cows of the Devon breed are given in the following table:

Yearly milk and butter-fat records of single purebred Devon cows.

Owner.	State.	Name of cow.	Age.	Milk yield.	Fat in milk.	Butter fat.
			Yrs.	*Pounds.*	*Per cent.*	*Pounds.*
J. C. Morris	Pennsylvania	Era	10	3,274	....	....
		Vesta	9	4,038	....	....
		Zephyr	8	3,171	....	....
		Lisa	7	4,652	....	....
		Zoe	7	4,097	....	....
		Bright Promise 13	6	2,855	....	....
		Clara R.	3½	3,431	....	....
		Zola	3	3,582	....	....
		Frisette	3	2,653	....	....
		Nicotine	2½	3,096	....	....
		Formosa	2	1,604	....	....
		Grace 8	.....	3,594	....	....
		Nora F	.....	3,606	....	....
		Songstress 5th	3	3,157	....	....
		Maud Brown 4th	4	2,907	....	....
		Annabelle	2	3,198	....	....
C. O. McAhron	Missouri	....	5	6,013	....	....
———	Massachusetts	Lady Alice	.....	9,038	4.28	388.3

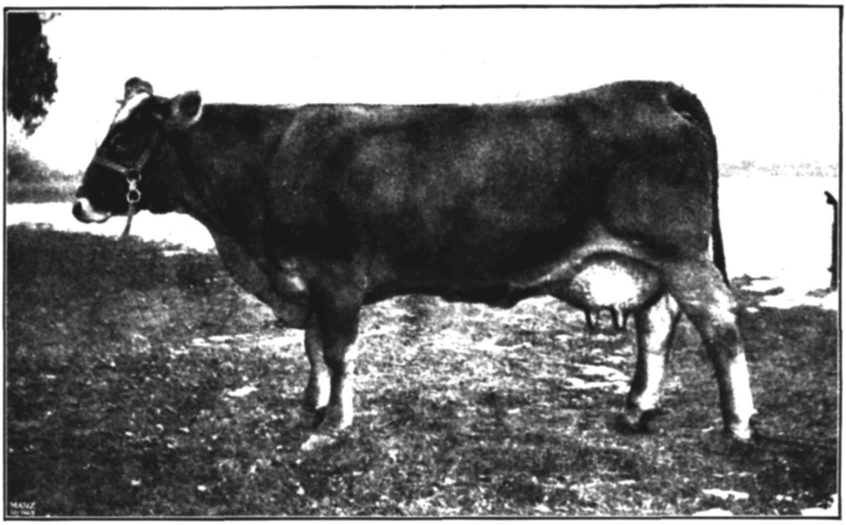


FIG. 1.—BEINWYL 720. PUREBRED BROWN SWISS.

Best year's record 10,966 lbs. milk, 445.4 lbs. butter, 4.06 per cent fat. Average of 4 years 8,525.6 lbs. milk, 347.7 lbs. butter, 4.08 per cent fat. Beinwyl is one of the largest Swiss cows in this country, weighing 1,850 lbs. in normal condition. She has produced a number of calves weighing at birth 150 lbs.

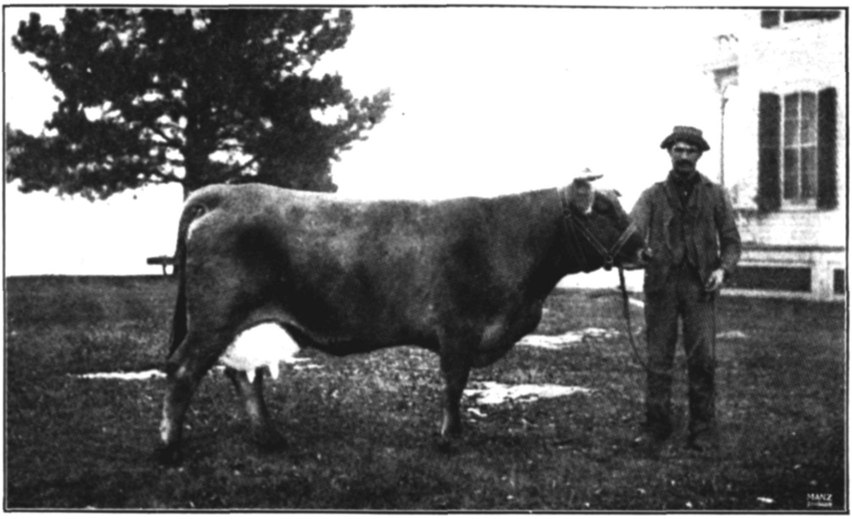


FIG. 2.—KAISERIN 850. PUREBRED BROWN SWISS.

Best year's record 10,295 lbs. milk, 400 lbs. butter fat, 3.89 per cent fat. Weight 1,460 lbs.

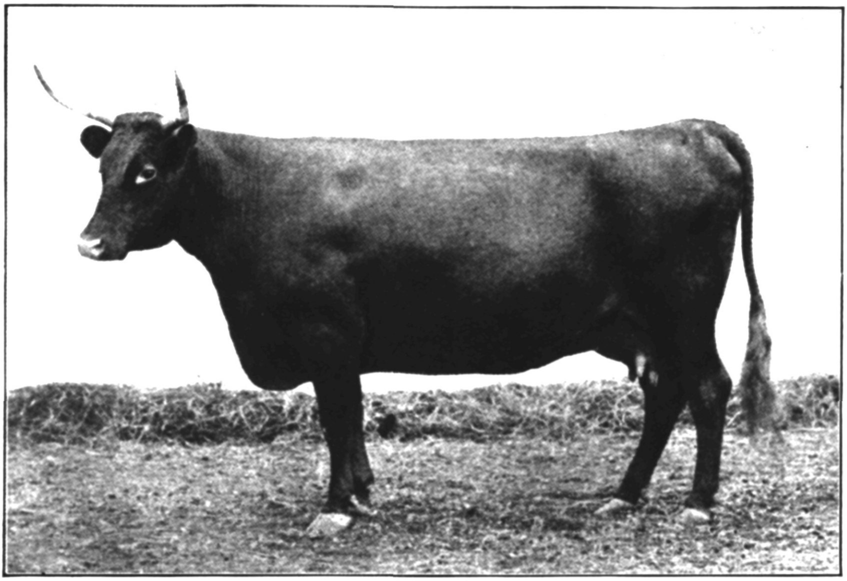


FIG. 1.—PRETTY PET 10579. PUREBRED DEVON.

First prize and sweepstakes three-year-old at the Pan-American Exposition.

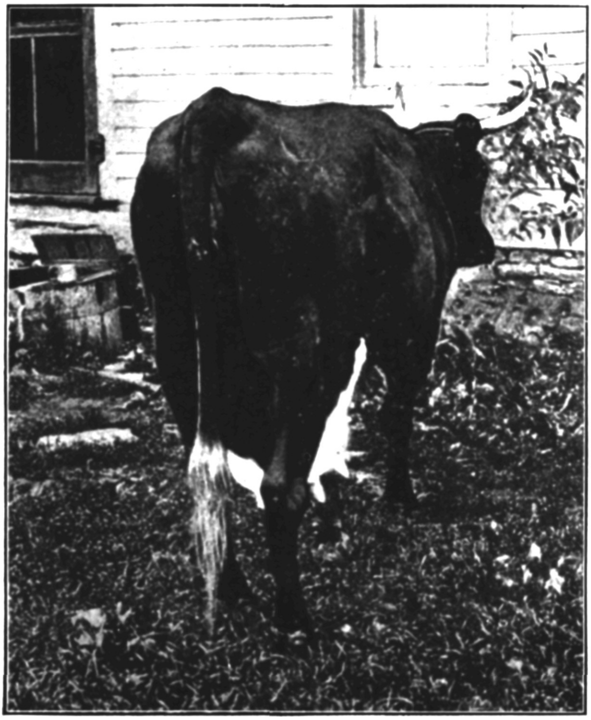


FIG. 2.—SONGSTRESS 2ND 12033. PUREBRED DEVON.

Daily record 37.5 lbs. milk as a two-year-old, 51 lbs. milk as a six-year-old, 4 per cent fat.

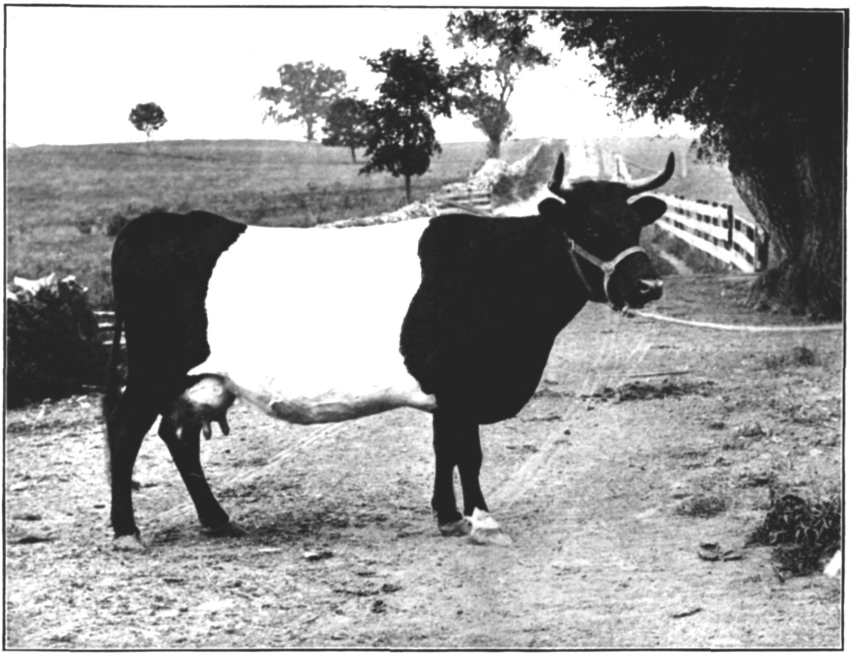


FIG. 1.—LADY CLARENCE 2ND 545. PUREBRED DUTCH BELTED.

Record 8,670 lbs. milk in 1 year.

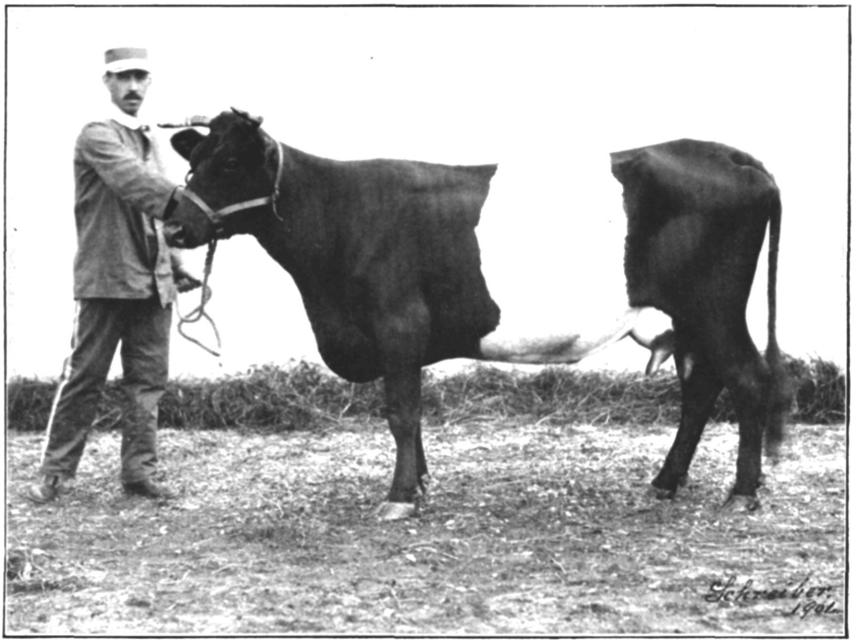


FIG. 2.—COUNTESS WARWICK 2ND 719. PUREBRED DUTCH BELTED.

First prize three-year-old at the Pan-American Exposition, 1901.

OFFICIAL RECORDS OF GUERNSEY CATTLE.

The following is a list of all records of Guernsey cows made since the establishment of The Advanced Register. They have been publicly supervised according to the requirements for that register by a representative of an agricultural school or experiment station.

Official records of single Guernsey cows admitted to Advanced Register, for one year.

[Corrected to May, 1905.]

CLASS A—5 YEARS AND OVER.

Name and registry numbers of cow.	Age.		Yield of milk.	Yield of butter fat.	Butter fat.
	Yrs.	*mos.*	*Pounds.*	*Pounds.*	*Per cent.*
Yeksa Sunbeam 15439, Adv. R. 331	9	6	14,920.80	857.15	5.74
Imp Princess Rhea 15479, Adv. R. 59, reentry	9	3	14,009.89	775.69	5.65
Imp Hayes Rosie 15476, Adv. R. 116	7	3	14,633.08	714.31	4.92
Imp Charmante of the Gron 14442, Adv. R. 74	6	3	11,874.76	676.47	5.70
Dairymaid of Elmplace 14197, Adv. R. 19, reentry	6	1	12,176.90	668.36	5.50
Auricula 2d 12209, Adv. R. 106, reentry	7	2	13,411.60	605.50	4.51
Maltie 9184, Adv. R. 203	7	5	11,681.60	591.96	5.11
Sultana of Paxtang 8732, Adv. R. 28, reentry	11	2	14,138.29	590.34	4.30
Elsie 3d of Level Green 7965, Adv. R. 232	9		11,809.05	582.71	5.00
Glenwood Girl 6th 9113, Adv. R. 1	6	7	12,187.33	672.30	4.78
Ollie of Belle Vernon 10775, Adv. R. 97	5	11	10,743.26	556.82	5.19
Auricula 2d 12209, Adv. R. 106	6	2	12,654.20	555.63	4.50
Imp Lady Ovid of Easton 15480, Adv. R. 222	6	9	10,336.54	551.06	5.00
Imp Itchen Beda 15627, Adv. R. 136	5	3	10,642.10	548.72	5.27
Orbie 11608, Adv. R. 171	6	5	11,079.60	545.75	5.05
Imp Pride of Home 14447, Adv. R. 56	8	4	11,450.60	534.26	4.80
Waller 9561, Adv. R. 250	7	2	11,194.40	533.68	4.81
Vine 8804, Adv. R. 134	8		10,739.20	526.71	5.04
Lula Bishop 13368, Adv. R. 210	7	2	10,225.40	518.81	5.09
Nellie Bly of Aldine 8180, Adv. R. 263	13	10	8,784.80	515.44	5.96
Pride of Spencer 11759, Adv. R. 186	6	11	8,915.40	515.73	5.89
Lady Bay of Verona 9767, Adv. R. 214	6	8	9,245.70	508.48	5.56
Primrose's Tricksey 7236, Adv. R. 2	6	8	9,277.00	508.00	5.66
Procris of Paxtang 8722, Adv. R. 14	6	3	10,542.72	506.56	4.95
Mosella Rose 10716, Adv. R. 243	6	1	10,365.80	504.88	4.99
Imp Minette of the Isles 10909, Adv. R. 89	6	4	9,982,39	497.62	5.10
Golden Acorn 8242, Adv. R. 29	7	5	9,529.60	496.55	5.24
Imp Antonina 14733, Adv. R. 44, reentry	8	2	11,164.50	493.48	4.47
Imp Belle Oceanie 10069, Adv. R. 21	5	11	9,152.90	487.36	5.39
Belle of Galway 11575, Adv. R. 85	6	7	9,600.70	486.91	5.10
Madame Rose 10759, Adv. R. 166	5	5	9,330.40	481.07	5.16
Faucette's Belle 8603, Adv. 4. 46	9	10	8,835.80	480.61	5.57
Annie Rooney 3d 8586, Adv. R. 54	6	8	9,379.91	479.08	5.16
Peaches of Paxtang 10333, Adv. R. 237	6	2	8,653.89	477.67	5.62
Cynthia Munroe 10990, Adv. R. 81	8	1	10,425.40	477.64	4.60
Creusa of Elmwood 10284, Adv. R. 279	8	7	10,533.76	474.85	4.55
Elite of Maplehurst 8452, Adv. R. 18	5	11	9,197.35	472.06	5.46
King's Myra 5339, Adv. R. 96	12	5	9,706.54	471.59	4.91
Jolie's Sunbeam 8800, Adv. R. 107	10		9,253.99	470.97	5.16
Ortive 13273, Adv. R. 122	5	4	8,117.20	469.90	5.92
Mary Marshall 5604, Adv. R. 15	10	1	8,212.57	468.40	5.99
Lucretia of Haddon 10831, Adv. R. 4	5	11	9,710.25	467.60	4.89
Mentor Maid 13261, Adv. R. 12, reentry	5	2	8,167.10	462.87	5.73
Countess 7th of Level Green 7963, Adv. R. 58	7	5	10,853.29	452.70	4.20
Imp Beauty of the Isle 10927, Adv. R. 80	6	7	8,510.42	452.43	5.40
Phoebe of Charlton 2d 15400, Adv. R. 244	9	11	8,543.80	447.31	5.27
Buttercup of Maplehurst 8994, Adv. R. 27	8	5	9,127.40	446.98	4.97
Moverina 9818, Adv. R. 233	6	6	8,559.76	442.64	5.24
Imp Antonina 14733, Adv. R. 44	7	3	10,441.44	441.11	4.44
Pride of Wasteland 7833, Adv. R. 125	8	7	8,055.13	438.54	5.57
Linnie 7242, Adv. R. 119	9	7	9,139.30	435.74	4.72
Queen Vashti 6051, Adv. R. 174	13	10	8,225.50	435.47	5.39
Trilby of Willow Brook 8069, Adv. R. 207	9	9	8,760.90	433.90	5.00
Gypsie of Racine 9639, Adv. R. 6	9	1	7,879.10	432.80	5.53
Echlin 13336, Adv. R. 197	7	3	8,115.70	426.85	5.35
Imp Belvidera 7644, Adv. R. 188	10	5	8,298.40	420.63	5.10
Alpine Maid 10271, Adv. R. 99	5	8	8,368.84	418.23	5.10
Lucy Lenfestey 8573, Adv. R. 238	8	5	6,947.20	417.66	6.20
Lofty's Margaret 7924, Adv. R. 36	6	11	7,567.00	416.82	5.72
Fair Annie of Guernsey Hill 10725, Adv. R. 249	5	11	8,099.00	416.20	5.20
Trilby of Paxtang 8727, Adv. R. 62	9	7	7,568.42	414.65	5.50
Millwood's Perseverance 12935, Adv. R. 64	9	9	8,288.73	413.10	5.14
Dorothy June 13913, Adv. R. 271	7	11	8,649.24	411.33	4.80
Minnesota 10453, Adv. R. 173	7	2	6,682.65	410.72	6.40

Official records of single Guernsey cows admitted to Advanced Register, for one year—Con.

CLASS A—5 YEARS AND OVER—Continued.

Name and registry numbers of cow.	Age.		Yield of milk.	Yield of butter fat.	Butter fat.
	Yrs.	*mos.*	*Pounds.*	*Pounds.*	*Per cent.*
Miss Mousie of Homestead 11505, Adv. R. 230	5	10	7,039.20	405.11	5.88
Imp Notre Dame 10894, Adv. R. 151	8	2	9,126.95	405.02	4.50
Roselle's Perfection 9327, Adv. R. 128	6	9	7,361.65	401.75	5.77
Fantine of Fernwood 9461, Adv. R. 93	6	2	8,442.76	403.52	4.79
Cloette 7855, Adv. R. 242	9	10	7,804.20	400.89	5.28
Lady Bishop 6518, Adv. R. 7	8	8	7,272.40	394.30	5.47
Fair Rosamond of Maplehurst 12165, Adv. R. 104	6	2	8,633.40	393.93	4.66
Queen of Salem 8857, Adv. R. 172	7	5	8,696.00	393.67	4.60
Sheet Anchor's Rutila 9170, Adv. R. 43	6		7,908.89	392.39	5.06
Quoin 2d 16736, Adv. R. 278	10		7,465.60	391.90	5.39
Miss Croesus 10038, Adv. R. 69	6	4	8,562.26	389.15	4.61
Leading Lady 10321, Adv. R. 150	5	9	8,082.40	388.23	4.85
Glenwood Girl 7th 9114, Adv. R 9	5	8	9,178.83	387.10	4.15
Lillian Wall 11388, Adv. R. 127	5	2	7,557.65	385.28	5.32
Nounon 6569, Adv. R. 10	10	8	7,059.50	382.80	5.81
Imp Maid of Lilyvale 15171, Adv. R. 163	6	5	7,469.55	382.43	5.30
Belle of Poplar Grove 7838, Adv. R. 177	8	6	6,138.80	382.30	6.40
Queen of Fairview 8261, Adv. R. 77	7	6	6,645.53	382.14	5.90
Kathleen Cottie 5403, Adv. R. 45	11	5	9,158.85	381.45	4.28
Primrosedale 8606, Adv. R. 113	7	5	7,754.90	380.41	5.18
Valley Girl 12399, Adv. R. 126	6		7,292.00	380.40	5.34
Alphea of Fernwood 10336, Adv. R. 129	5	7	6,781.25	378.66	5.82
Cena's Favorite 2d 8870, Adv. R. 251	8	3	7,868.00	378.58	4.87
Belle Brandon 2d 16741, Adv. R. 229	5	4	7,651.80	374.69	5.12
Ollie 6769, Adv. R. 82	9	11	7,751.60	374.60	5.13
Lady Myrtle 9057, Adv. R. 65	7	6	8,310.07	374.33	4.54
Frau 7226, Adv. R. 112	9		8,328.00	373.99	4.71
Imp Honesty 14th 10931, Adv. R. 88	7	4	7,815.36	371.23	4.90
Tallman's Choice 9290, Adv. R. 272	9	10	7,369.20	369.41	5.12
Princessa Elegante 8272, Adv. R. 193	8	3	8,603.40	369.34	4.28
Yolande W. 14374, Adv. R. 32	5	8	8,200.20	369.17	4.71
Lofty's Isabella 7922, Adv. R. 34	7	3	8,637.50	368.57	4.29
Fenella Fitzhugh 10983, Adv. R. 248	5	7	6,914.50	367.61	5.53
Belle O. K. 12944, Adv. R. 156	6	6	8,086.76	365.79	4.91
Narkeeta 8514, Adv. R. 140	8		7,993.20	365.22	4.65
Cassiopeia 4885, Adv. R. 17	10	6	8,528.23	365.15	4.33
Sultana of Paxtang 8732, Adv. R. 28	10	2	8,863.52	365.04	4.25
Miss Rita 8506, Adv. R. 39	6	6	7,688.96	364.71	4.82
Queen Bee 6168, Adv. R. 24	9	6	6,954.15	364.00	5.20
Princess Hattie 10353, Adv. R. 277	6	3	6,948.20	362.34	5.30
Fesca 7619, Adv. R. 83	8	3	7,553.60	361.47	4.83
Vega 7214, Adv. R. 20	7	7	7,617.94	361.31	5.28

CLASS B—4½ TO 5 YEARS.

Imp Pretoria 14443, Adv. R. 73	4	9	11,528.84	595.35	5.30
Stranford's Princess 11740, Adv. R. 199	4	7	9,288.20	547.17	5.91
Lydema B. 10949, Adv. R. 152	4	10	9,478.00	501.23	5.41
Lucretia's Daughter 11256, Adv. R. 3	4	11	11,084.63	489.60	4.40
Glenwood Girl 8th 10830, Adv. R. 5	4	9	11,310.13	461.90	4.19
Isabella V. 11842, Adv. R. 252	4	9	7,950.00	454.70	6.24
Jedetta 11966, Adv. R. 227	4	9	8,601.30	451.07	5.25
Lolita of Darlington 11606, Adv. R. 181	4	7	8,452.45	443.46	5.22
Victorine of Fernwood 10966, Adv. R. 109	4	10	8,271.78	387.04	4.75
Do Fess 11218, Adv. R. 120	4	7	7,495.30	380.40	5.27
Uneeda C. 11806, Adv. R. 196	4	7	8,135.50	375.44	4.69
Jennie of Orange 12911, Adv. R. 90	4	7	7,637.20	375.23	5.03
Fes Lip 10621, Adv. R. 76	4	6	7,979.00	373.92	4.78
Bertelle of Orange 12696, Adv. R. 101	4	7	7,250.90	361.11	5.14
Sukine 10323, Adv. R. 47	4	6	6,881.50	354.07	5.33
Maid of Orleans 11122, Adv. R. 98	4	10	6,429.30	353.62	5.72
Louise of Bellmath 14024, Adv. R. 223	4	7	6,471.60	353.25	5.57

CLASS C—4 TO 4½ YEARS.

Portia of Maplehurst 10071, Adv. R. 22	4	1	11,622.65	602.37	5.29
Diana of Maplehurst 12169, Adv. R. 180	4	4	8,189.70	461.46	5.63
Lady McQueen 14581, Adv. R. 178	4	4	7,579.45	449.03	6.05
Pride of Maplehurst 10070, Adv. R. 25	4	2	9,053.70	446.52	5.19
Belle R. 2d 12940, Adv. R. 108	4	2	8,551.39	442.25	5.30
Edna Mae of Ashland 13413, Adv. R. 254	4	2	8,631.79	439.64	5.10
Elsie of Orange 12612, Adv. R. 63	4	1	8,802.90	420.68	4.87

Official records of single Guernsey cows admitted to Advanced Register, for one year—Con.

CLASS C—4 TO 4½ YEARS—Continued.

Name and registry numbers of cow.	Age.		Yield of milk.	Yield of butter fat.	Butter fat.
	Yrs.	*mos.*	*Pounds.*	*Pounds.*	*Per cent.*
Main Stay's Honoria 11120, Adv. R. 57	4	2	8,281.92	419.52	5.20
Select's O. K. 12942, Adv. R. 117	4	4	8,916.09	418.58	5.02
Coralou 15807, Adv. R. 198	4	1	7,099.00	412.25	5.98
Imp Claremont Ruth 4th 15628, Adv. R. 130	4	0	7,883.15	407.87	5.60
Lady Blanche of Ashland 12664, Adv. R. 38	4	2	9,317.70	407.50	4.45
Paula of Richmond 15808, Adv. R. 273	4	3	8,314.90	401.35	4.90
Jewel of Haddon 11259, Adv. R. 92	4	1	7,645.40	397.25	5.20
Elmwood Style 17294, Adv. R. 280	4	2	8,175.91	397.06	4.99
Native Honor 12234, Adv. R. 144	4	0	8,317.00	395.29	5.02
Endeavor of Sunnyside 11674, Adv. R. 146	4	2	6,517.90	382.32	6.21
Beulah of Bendbrook 12568, Adv. R. 61	4	3	6,948.53	373.27	5.60
Country Lassie 12230, Adv. R. 149	4	0	7,332.90	372.57	5.11
Golden Fleece 11110, Adv. R. 95	4	4	6,752.90	366.42	5.60
King's Bonnie 13572, Adv. R. 131	4	1	7,272.00	345.10	5.00
Do Zieg 11219, Adv. R. 75	4	0	6,464.10	337.53	5.23

CLASS D—3½ TO 4 YEARS.

Vestella of Belle Vernon 12500, Adv. R. 139	3	9	10,064.30	550.21	5.53
Early Rose of Raritan 11782, Adv. R. 72	3	8	9,435.14	543.03	5.75
Imp Golden Day I 16919, Adv. R. 259	3	8	9,524.21	524.61	5.63
Minnie of Hop City L. 15444, Adv. R. 154	3	10	9,705.10	509.01	5.37
Primrose of Salem 12524, Adv. R. 216	3	10	8,862.50	500.63	5.74
Emma Donaldson 12341, Adv. R. 200	3	10	8,159.40	460.09	5.64
Imp Cambrian Princess 14446, Adv. R. 87	3	7	7,234.57	457.07	6.50
Imp Pride of the Ruettes Brayes 16922, Adv. R. 260	3	8	8,068.21	433.09	5.42
Pampas 12207, Adv. R. 138	3	8	8,118.20	412.02	5.18
Lucretia's Maid of Honor 12618, Adv. R. 137	3	9	8,127.50	410.82	5.28
Corona Parnell 12656, Adv. R. 141	3	7	8,205.29	392.45	5.01
Leonora of Baltimore 2d 12354, Adv. R. 175	3	9	7,558.90	377.69	5.11
Minar C. 15809, Adv. R. 217	3	10	6,597.90	363.27	5.51
Lilian of Bendbrook 13096, Adv. R. 274	3	9	6,288.14	359.11	6.00
Floret Williams 12602, Adv. R. 153	3	10	6,955.26	341.53	5.05
Naomi's Faith 14083, Adv. R. 94	3	8	7,941.16	339.76	4.44
Fernwood of Chantilly 11886, Adv. R. 37	3	8	7,782.66	327.08	4.37
Kanova 14237, Adv. R. 213	3	9	6,024.80	326.59	5.61
Lady Washington of Elm Place 13262, Adv. R. 79	3	7	7,172.75	314.43	4.46

CLASS E—3 TO 3½ YEARS.

Dolly Bloom 12770, Adv. R. 40, reentry	3	5	12,674.83	623.94	5.01
Modena 11779, Adv. R. 67	3	5	10,628.77	580.32	5.49
Imp Royal Rose of Easton 15483, Adv. R. 147	3	0	9,576.90	517.80	5.46
Melba Hastings 12661, Adv. R. 132	3	5	10,536.33	508.98	5.04
Mary Marshall 5th 11814, Adv. R. 60	3	1	9,306.30	474.50	5.28
Dairy Maid of Elm Place 14197, Adv. R. 19	3	1	9,045.80	473.47	5.43
Maggie Wylie 13142, Adv. R. 52, reentry	3	3	8,625.01	472.05	5.57
Proda of Burnside 14229, Adv. R. 55	3	1	8,115.17	459.59	5.70
Virelay 13300, Adv. R. 187	3	1	9,343.60	451.92	4.88
Frau 2d 15694, Adv. R. 133	3	5	8,089.20	442.53	5.77
Coralura 15811, Adv. R. 176	3	0	8,137.40	427.24	5.24
Marcia of Pinehurst 13094, Adv. R. 105	3	0	7,488.55	426.55	6.00
Imp Bonne et Belle 14455, Adv. R. 155	3	2	9,458.90	423.85	4.60
Pride of Ashland 13410, Adv. R. 162	3	5	8,360.10	423.53	5.25
Hotine 12956, Adv. R. 142	3	3	6,932.79	415.53	6.02
Eulalie of Elm Place 14398, Adv. R. 41	3	5	7,026.30	415.32	6.20
Lady Benjamin 9805, Adv. R. 8	3	2	6,815.50	390.90	5.87
Imp Couleur de Rose 14456, Adv. R. 70	3	3	8,155.79	389.24	4.80
Lady Erwin of Highland 15418, Adv. R. 234	3	0	6,974.95	386.96	5.68
Grande Dame 13138, Adv. R. 206	3	5	7,786.05	384.84	5.02
Imp Lady Cambria 17196, Adv. R. 261	3	5	6,917.03	364.95	5.40
My Lady Bountiful 12617, Adv. R. 145	3	5	7,964.00	360.61	4.61
Agatha of Upper Freehold 17213, Adv. R. 268	3	4	6,582.60	351.05	5.55
Mollie of Maplehurst, 13010, Adv. R. 179	3	3	6,718.70	349.68	5.20
Gem's Pauline 11862, Adv. R. 66	3	5	6,701.38	337.89	5.26
Elvira of Orange 12610, Adv. R. 123	3	3	6,551.48	327.36	5.15
Imp Dodie 16923, Adv. R. 262	3	3	6,776.59	327.19	4.98
Maggie Pearce 11905, Adv. R. 78	3	2	6,550.84	325.71	5.00
Maggie Hastings 10503, Adv. R. 23	3	5	6,590.78	313.57	4.92
Camisa 11437, Adv. R. 35	3	0	7,625.76	298.91	3.94

Official records of single Guernsey cows admitted to Advanced Register, for one year—Con.

CLASS F—2½ TO 3 YEARS.

Name and registry numbers of cow.	Age.		Yield of milk.	Yield of butter fat.	Butter fat.
	Yrs.	*mos.*	*Pounds.*	*Pounds.*	*Per cent.*
Sister Sue of Mossgiel 17480, Adv. R. 270	2	7	10,622.26	582.37	5.53
Ada of Hop City 15361, Adv. R. 91	2	9	8,605.10	517.11	6.02
Corolla Taylor 12533, Adv. R. 53	2	7	8,431.50	426.01	5.29
Imp Cora's Queen's Prize IV, 16004, Adv. R. 143	2	11	8,080.38	410.81	5.18
Patience W. 14633, Adv. R. 118	2	11	7,406.71	404.37	5.67
Cecchina 11694, Adv. R. 33	2	9	7,576.71	398.58	5.21
Lady Malena, 14639, Adv. R. 241	2	7	7,250.70	395.92	5.60
Picture of Elm Place 14279, Adv. R. 84	2	6	8,648.40	393.60	4.55
Florence of Hop City 15445, Adv. R. 121	2	11	7,534.20	391.19	5.28
Atlantis of Pinehurst 14525, Adv. R. 182	2	6	7,296.50	389.78	5.40
Dewey Rose, 16863, Adv. R. 225	2	9	8,234.30	389.77	4.74
Queen Nellie 13792, Adv. R. 189	2	8	7,064.90	388.50	5.60
Lady Pauline 14643, Adv. R. 239	2	9	6,827.10	387.26	5.90
Fidora 14645, Adv. R. 211	2	9	6,939.40	366.36	5.30
Cottie of Elm Place 14167, Adv. R. 16	2	10	7,710.50	352.63	4.91
Lorna Lenfestey 14666, Adv. R. 240	2	8	7,167.10	347.19	5.01
Conovia 14648, Adv. R. 246	2	9	6,331.40	347.13	5.78
Imp Deanie X 13881, Adv. R. 42	2	7	7,535.38	341.10	4.59
Twilight Lonan 12484, Adv. R. 49	2	6	6,954.00	340.09	5.00
Modita 14644, Adv. R. 194	2	10	5,339.20	337.70	6.36
Dorothy Manners of Paxtang 14616, Adv. R. 165	2	8	6,176.38	333.20	5.81
Leslie Lenfestey 14640, Adv. R. 245	2	8	5,337.20	331.68	6.44
Lottie Morse 14641, Adv. R. 228	2	7	5,482.60	331.59	6.09
Luna Lenfestey 14646, Adv. R. 212	2	11	5,265.00	316.28	6.05
Flora Young 13684, Adv. R. 164	2	10	5,405.65	300.63	5.60
Alta's Pearl 14278, Adv. R. 236	2	9	6,708.59	310.88	4.79
Ezalia 2d 13029, Adv. R. 135	2	11	5,344.53	294.25	5.75
Sunbeam of Paxtang 14619, Adv. R. 195	2	7	5,646.50	286.37	5.10
May Yeksa 13446, Adv. R. 114	2	7	5,884.90	285.39	5.04
Olive of Richmond 15815, Adv. R. 218	2	10	5,168.70	282.83	5.50

CLASS G—2 TO 2½ YEARS.

Imp Itchen Daisy 3d 15630, Adv. R. 100	2	0	9,958.70	533.83	5.39
Lady Yocum 14254, Adv. R. 102	2	3	9,942.79	472.90	4.85
Dolly Bloom 12770, Adv. R. 40	1	11	8,841.58	453.86	5.13
Maid of Modena 13888, Adv. R. 192	2	5	8,427.88	450.76	5.36
Little Sis of Riverside 15931, Adv. R. 247	2	4	9,030.39	431.67	4.78
Countess Coral Beauty 14353, Adv. R. 208	2	5	8,170.54	423.97	5.26
Imp Violet of Lilyvale II 15172, Adv. R. 257	2	5	9,087.80	417.42	4.60
Maggie Wylie 13142, Adv. R. 52	1	10	7,755.52	413.42	5.38
Nancy of Lyndon Heights 15327, Adv. R. 258	2	0	8,104.65	409.75	5.10
Queen Red Rose 14340, Adv. R. 158	2	0	7,482.70	405.14	5.48
Phrosia 14532, Adv. R. 190	2	0	7,786.50	403.89	5.29
Lady May of Elm Place 12549, Adv. R. 26	2	3	7,859.30	403.34	5.20
Faucette's Pretty Maiden 13837, Adv. R. 167	2	3	8,049.60	400.18	5.01
Cassie Woodburn 14159, Adv. R. 157	2	0	7,597.40	390.79	5.20
Roxy of Charlton 2d 15356, Adv. R. 170	2	2	7,854.60	388.44	4.98
Imp Melanie of Goodnestone 3d 15485, Adv. R. 235	2	5	7,415.50	387.76	5.28
Minnie of Willowdale 15043, Adv. R. 169	2	1	7,668.70	387.49	5.06
Margis of Richmond 15723, Adv. R. 220	2	0	6,795.50	380.87	5.64
Miss Simplicity 14531, Adv. R. 215	2	2	8,653.20	380.30	4.39
Imp Pretoria 2d 14444, Adv. R. 205	2	3	6,980.15	379.87	5.50
Imp Magnet of Lilyvale II 15174, Adv. R. 255	2	4	7,491.90	379.75	5.10
Cammilla W. 15236, Adv. R. 266	2	0	7,405.58	372.76	5.14
Lily Maid of Richmond 15721, Adv. R. 226	2	0	7,817.00	372.69	4.83
Laurel of Richmond 15724, Adv. R. 275	2	0	6,922.20	371.68	5.44
Elite of Elm Place 14164, Adv. R. 168	2	3	7,618.20	370.91	4.86
Spot of Upper Freehold 17237, Adv. R. 269	2	0	7,043.20	366.58	5.30
Imp Sweet Clover of Lyndon Heights 15579, Adv. R. 256	2	0	6,894.10	362.51	5.30
Edine of Richmond 15722, Adv. R. 219	2	0	6,317.70	361.48	5.81
Annie Burns 13035, Adv. R. 103	2	5	7,175.83	361.41	5.15
Ferndale 13868, Adv. R. 185	2	3	6,306.85	359.32	5.84
Graph's Princess 13037, Adv. R. 68	2	3	6,332.80	356.64	5.67
Kitty Cooper 2d 14568, Adv. R. 265	2	4	6,995.00	353.46	5.10
Estella Trink 14787, Adv. R. 267	2	0	6,086.00	352.53	5.81
Florham Lassie 15741, Adv. R. 202	2	5	6,791.50	350.33	5.20
Imp Love Knot 2d 14450, Adv. R. 191	2	5	7,616.50	348.82	4.60
Lou of Richmond 15727, Adv. R. 221	2	0	5,703.90	347.64	6.18
Zelma 13051, Adv. R. 31	1	10	6,068.20	340.34	5.77
Gertrude Kelly 13709, Adv. R. 209	2	5	5,749.40	338.73	5.93
Brighteyes of Elm Place 14166, Adv. R. 184	2	2	6,080.65	335.65	5.72
Queen of Orange 2d 12751, Adv. R. 51	2	3	6,276.65	328.49	5.28
Lady Julia Ann 15217, Adv. R. 160	2	4	7,926.45	326.00	4.28
Clio of Richmond 15816, Adv. R. 111	2	0	6,554.20	321.17	5.08
Imp On the Sly 15632, Adv. R. 201	2	3	5,976.75	320.45	5.41

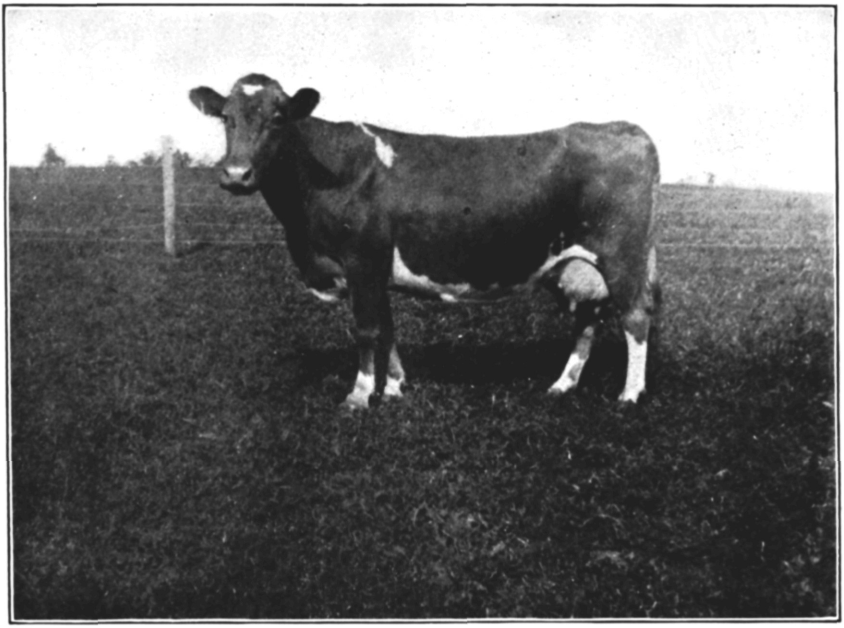


FIG. 1.—YEKSA SUNBEAM 15439 ADV. R. 331. PUREBRED GUERNSEY.

Official year's record 14,920 lbs. milk, containing 857.15 lbs. butter fat, equal to 1,000 lbs. butter.

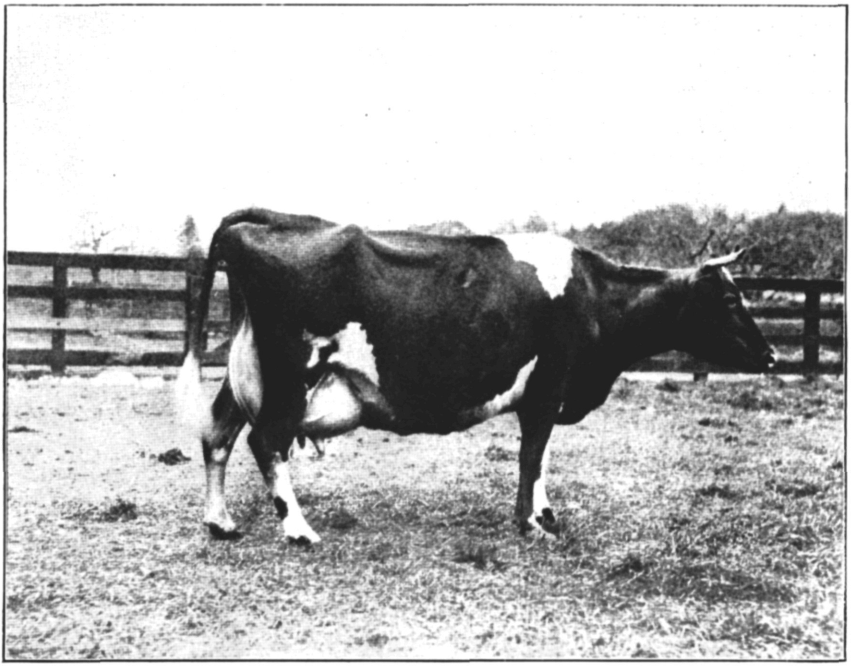


FIG. 2.—IMP. HAYES ROSIE 15476. PUREBRED GUERNSEY.

Year's record, 14,633 lbs. milk, 714.31 lbs. butter fat, 4.92 average per cent of fat.

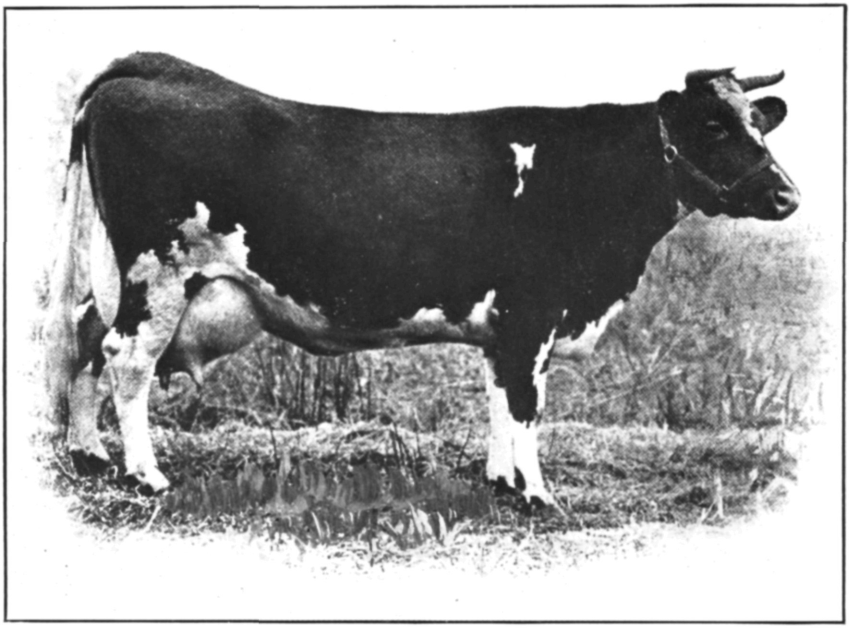


FIG. 1.—AURICULA 2ND 12209. PUREBRED GUERNSEY.

Best year's record 13,411.6 lbs. milk, 605.5 lbs. butter fat, 4.51 per cent butter fat. Average yield of milk for 5 years 11,281.3 lbs.

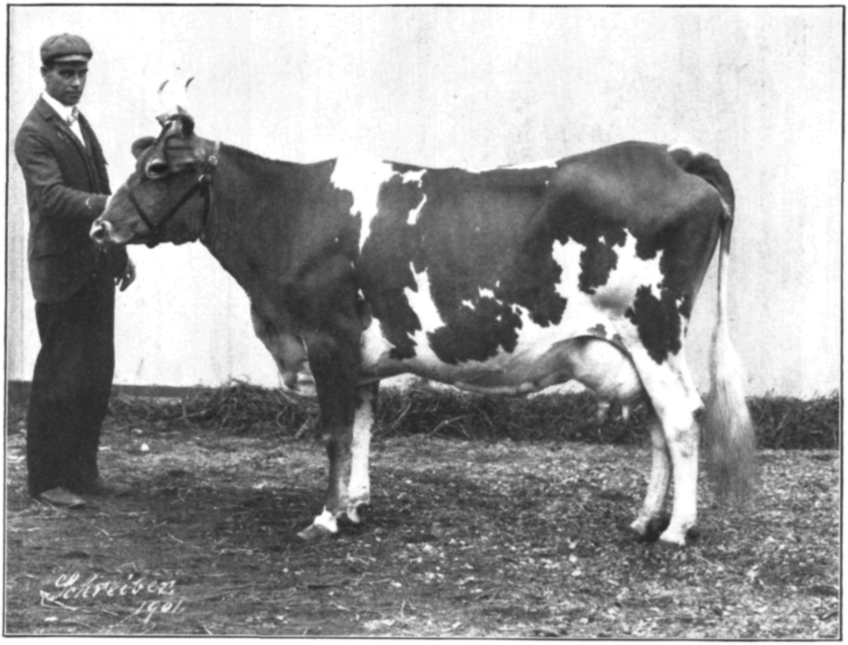


FIG. 2.—MARY MARSHALL 5604. PUREBRED GUERNSEY.

First in the model dairy herd test at the Pan-American Exposition, 1901. Record for 6 months 5,611 lbs. milk, 5.36 per cent of fat, 354.26 lbs. estimated butter.

Official records of single Guernsey cows admitted to Advanced Register, for one year—Con.

CLASS G—2 TO 2½ YEARS—Continued.

Name and registry numbers of cow.	Age.		Yield of milk.	Yield of butter fat.	Butter fat.
	Yrs.	*mos.*	*Pounds.*	*Pounds.*	*Per cent.*
Frau of Richmond 15726, Adv. R. 231	2	0	6,898.90	316.03	4.62
Guinea Gold 15740, Adv. R. 204	2	6	5,957.85	315.48	5.40
Matha of Bellmath 15856, Adv. R. 224	2	1	5,623.70	314.40	5.73
Monda 14996, Adv. R. 148	2	0	5,822.32	312.82	5.47
Helas of Richmond 15725, Adv. R. 276	2	0	6,812.30	312.42	4.68
Arabella Platt 13332, Adv. R. 71	2	0	6,856.63	310.86	4.58
Lottie of Lyndon Heights 15580, Adv. R. 264	2	0	6,738.30	310.42	4.70
Roselle's Imperial 13490, Adv. R. 124	2	5	6,455.51	305.01	4.84
Frau 3d 15817, Adv. R. 110	2	0	6,702.30	303.57	4.80
Ella Elvira of Perry 14595, Adv. R. 30	2	0	5,471.10	296.99	5.57
Naomi Trink 2d 12757, Adv. R. 50	2	3	5,534.85	294.09	5.37
Goldsmith Maid 13990, Adv. R. 183	2	3	5,787.16	292.28	5.06
Primrosedale 2d 14360, Adv. R. 115	2	0	6,550.10	286.90	4.55
Etheleta of Maplehurst 15040, Adv. R. 86	2	5	4,466.60	276.79	6.25
Countess of Rosendale 13493, Adv. R. 161	2	3	4,876.90	273.96	5.74
Beatrice of Orange 15273, Adv. R. 235	2	1	6,199.23	267.36	4.35
Daisy of Rosendale 14271, Adv. R. 48	2	1	6,003.10	260.72	4.44
Cottie of Elm Place 2d 14168, Adv. R. 159	2	0	5,284.55	260.58	5.13

Summary showing highest in each class in foregoing table.

Class and name of cow.	Milk.	Butter fat.
	Pounds.	*Pounds.*
Mature cow, Yeksa Sunbeam 15439, Adv. R. 331	14,920.80	857.15
4½-yr. old cow, Imp Pretoria 14443, Adv. R. 73	11,528.84	595.35
4-yr. old cow, Portia of Maplehurst 10071, Adv. R. 22	11,622.65	602.37
3½-yr. old cow, Vestella of Belle Vernon 12500, Adv. R. 139	10,064.30	550.21
3-yr. old cow, Dolly Bloom 12770, Adv. R. 40, reentry	12,674.83	623.94
2½-yr. old cow, Sister Sue of Mossgiel 17480, Adv. R. 270	10,622.26	582.87
2-yr. old cow, Imp Itchen Daisy 3d 15630, Adv. R. 100	9,958.70	533.83
Best milk record, Yeksa Sunbeam 15439, Adv. R. 331	14,920.80	....

Highest records before advanced register was started, made with the public supervision of an agricultural experiment station.

Name of cow.	Milk.	Butter fat.
	Pounds.	*Pounds.*
Lily Ella 7240	12,282.68	782.16
Lilyita 7241	12,812.73	710.58

Other official year's records of purebred Guernsey cows.

Name and number of cow.	Milk.	Butter fat.	Age.
	Pounds.	*Pounds.*	*Years.*
Countess Bishop 7869	7,387.30	452.23	4
Buda 7178	8,605.50	434.05	6
Quibble 8017	8,894.75	409.90	6
Madame Tricksey 6519	7,024.60	405.19	6
Imp Doutta Galla 4th 7675	7,410.75	390.63	7
Lady Bishop 6518	6,608.90	381.10	7
Prestoun 6570	6,868.30	355.68	7
Verna of Hazelwood 11761	7,654.80	353.23	6
Nounon 6569	6,338.00	351.70	9
Quietness 6018	5,910.50	350.55	8
Miss Buttermaker 9058	6,960.66	348.14	6½
Imp Villett's Gem 8664	6,989.75	346.98	5
Jessamine of Simsbury 11662	8,560.24	344.33	6
Samanna 11265	....	341.50	5
Sieg 6855	7,276.70	339.77	9
Tidy 3839	6,489.50	339.42	14

Other official year's records of purebred Guernsey cows—Continued.

Name and number of cow.	Milk.	Butter fat.	Age.
	Pounds.	*Pounds.*	*Years.*
Coralie of Ridgeview 5926	8,085.10	334.12	11½
Jessie Gaines 7997	6,901.70	332.20	6½
Imp Norseman 3d 10911	7,551.00	332.05	6½
Josie B. 8504	7,244.85	320.83	7
Annie Collins 5893	6,165.80	309.76	12
Morning Rose 2d 10402	7,047.69	308.48	4
Alceda of Elizabeth 13007	5,389.15	295.52	3½
Roselle's Perfection 9327	5,740.27	293.04	6
Imp Claremont Hyacinth 2d 14448	6,067.90	291.19	3½
Lorelei of Haddon 14053	5,955.80	283.91	3
Minnie of Paulsdale 13702	6,997.20	281.44	3
Lodovia 14647	4,768.60	279.48	3½
Melody F. 7109	6,447.40	273.29	8½
Miranda Buzzard 6719	6,189.34	271.40	10½
Fesdo 9072	6,034.90	268.33	7½
Lidgia Lenfestey 14642	4,462.10	267.93	2½
Primrose's Lady Mary 11531	5,019.85	265.89	3½
Pomp's Duchess 7398	5,430.80	265.17	9
Edena 8954	6,207.90	260.67	6½
Roselle's Choice 11159	5,204.30	256.91	4
None Else 15744	5,232.80	255.89	2
Wasteland Clover 13491	5,399.20	254.95	2½
Silence 8957	5,421.54	254.41	6
Naomi Princess 10708	5,130.83	247.89	4
Staffa 5540	5,877.28	240.88	11½
Louise of Ellerslie 8930	3,962.00	234.07	3
Phrosa of Hawthorn 14634	5,296.60	232.09	2
Main Stay's Enchantress 12620	4,710.38	231.28	4
The Infanta 6840	5,605.71	223.54	8½
Adelgitha 4615	4,740.01	219.10	13
Theba 9820	4,749.22	218.91	5½
Fabiola 9823	3,979.93	218.19	5
Danceaway 8955	5,115.96	212.86	6

It should be remembered that these records are for butter fat, and to be compared with butter records, as usually published, one-sixth should be added to the butter fat.

Yearly butter records over 400 pounds of purebred Guernsey cows—made prior to advanced registry (1901).

Name and No. of cow.	Owner.	Yield of milk.	Butter fat in milk.		Yield of butter fat.	Yield of butter.	Age at test.
			Range.	Average.			
		Pounds.	*Per cent.*	*Per ct.*	*Lbs.*	*Lbs.*	*Yrs.*
Lily Ella 7240	Jas. H. Beirne	12,282.7	5.5 to 7.6	6.42	782.2	912.5	5
Lilyita 7241	do	12,812.7	5.0 to 7.3	5.69	710.5	828.9	5
Gypsy of Racine 9639	Geo. C. Hill & Son	11,247.5	4.95 to 5.6	5.45	611.4	713.3	8
Imp Bretonne 3660	Levi P. Morton	11,218.8	5.2 to 6.1		602.9	703.4	9
Buda 7178	do	8,559.0		6.96	602.7	703.0	6
Miss Bobolink 2157	N. I. Bowditch	12,437.0	4.4 to 6.0	4.80	596.9	696.5	13
Glenwood Girl 6th 9113	E. T. Gill	12,184.3	4.24 to 5.6	4.78	572.2	667.5	5
Quibble 6017	Levi P. Morton	10,548.0	4.3 to 5.8	5.17	545.3	636.0	6
Imp Doutta Galla 4th 7675	do	9,166.0		5.66	519.0	605.5	6
Imp Villets Gem 8644	do	9,265.0		5.58	517.0	603.0	5
Fantine 2d 3730	Chas. Solveson	9,748.0	5.0 to 5.6		516.6	602.7	8
Madge of Avon 6802	Levi P. Morton	9,198.0		5.59	514.7	600.5	9
Yeksa's Queen 6631	A. J. Philips	9,886.6		5.20	514.1	599.8	5
Lily Ella 7240	Jas. H. Beirne	9,370.3	4.6 to 7.0	5.64	513.2	598.7	3
Imp Louise of Ellerslie 8930	Levi P. Morton	8,770.0		5.81	510.0	595.0	2
Glenwood Girl 2d 9108	E. T. Gill	9,944.7	4.5 to 5.2			593.5	
Primrose Tricksey 7236	Geo. C. Hill & Son	9,277.0	4.7 to 6.4	5.66	508.0	592.6	7
Countess Bishop 7869	do	8,231.2	3.3 to 7.9	6.06	499.9	583.3	3
Rutila's Daughter 6670	H. McK. Twombly	8,988.0		5.45	489.8	571.4	3
Imp Rydale's Jessie 7686	Levi P. Morton	8,980.0		5.43	487.5	569.0	6
Adario 5653	do	7,378.0		6.61	487.6	569.0	7
Cousin Beatrice 7303	do	10,023.0		4.83	484.1	565.0	5
Coralette 5722	Geo. C. Hill & Son	8,845.4		5.42	479.7	559.7	3½
Nubia's Vesta 5986 (for six months.)	do	7,222.0		6.60	476.7	556.2	4
Imp May Jessie 7678	Levi P. Morton	7,614.0		6.24	475.1	554.0	5
Imp Esmeralda 8657	do	10,174.0		4.66	474.1	553.0	8
Quietness 6018	do	8,299.0		5.62	466.0	543.7	6
Millwood's Perseverance	N. I. Bowditch	8,473.0		5.50	466.0	543.7	6

Yearly butter records over 400 pounds of purebred Guernsey cows, etc.—Continued.

Name and No. of cow.	Owner.	Yield of milk.	Butter fat in milk.		Yield of butter fat.	Yield of butter.	Age at test.
			Range.	Average.			
		Pounds.	*Per cent.*	*Per ct.*	*Lbs.*	*Lbs.*	*Yrs.*
Glenwood Girl 3d 9109	E. T. Gill	9,273.7	4.5 to 6.2	5.07		541.8	7
Kings Myra 5339	Ezra Michener	8,611.0				539.5	4
Imp Beauty des Domaines 3d 4933.	H. W. Comfort					535.4	6
Miss Holton of Haddon 9731.	E. T. Gill					534.3	
Imp Honoria 4th 5989	H. McK. Twombly	9,589.0		4.75	455.5	531.4	5
Arbutus of Haddon 10341	E. T. Gill					530.8	
Imp Rose of the Quartiers 8654.	Levi P. Morton	7,989.0		5.68	453.8	529.0	7
Lily B. 9134	Jas. H. Beirne	8,042.0		5.60	450.4	525.4	4
Madame Tricksey 6519	Geo. C. Hill & Son	7,714.6	4.7 to 6.7	5.71	441.8	515.5	6
Imp Bonnie Cobi 7671	Levi P. Morton	7,474.0		5.91	441.7	515.0	5
Queen of Chenequa 6544	Chas. Solveson	7,724.0		5.70	440.3	513.7	5
Imp Valentine De Gron 7641	Levi P. Morton	8,267.0		5.32	438.8	512.0	7
Lady of Ellerslie 4543	do	6,156.0	6.0 to 7.9	7.13	438.8	512.0	9
Mary Marshall 5604	Ezra Michener					511.3	6
Teresita 8056	N. K. Fairbank				436.2	508.9	
Decasse 7669	Levi P. Morton	7,208.0		6.04	435.4	508.0	4
Coca 4258	H. McK. Twombly	8,153.3		5.33	434.6	507.0	9
Morn 5947	N. K. Fairbank	7,606.8		5.71	434.3	506.7	3
Glenwood Girl 7th 9114	E. T. Gill	9,654.2	3.9 to 5.4	4.60		506.5	4
Glenwood Girl 4th 9110	do	9,906.7	3.8 to 5.3	4.43		504.5	6
Lauretta 3404	South Dakota Agricultural College.	8,944.0		4.60	432.1	504.1	9
Imp Lady Archer 5th 6361.	Levi P. Morton	9,223.0	4.4 to 6.8	4.61	425.0	495.8	6
Yum Yum 2d of Haddon 7746.	E. T. Gill					495.7	
Lady Bishop 6518	Geo. C. Hill & Son	7,449.3	5.1 to 7.0	5.69	424.4	495.2	8
Madame Bishop 2724	do	7,619.1		5.57	424.1	494.7	10
Sarepta Paulsdale 7387	South Dakota Agricultural College.	8,477.0			424.0	494.7	3
Lulu of Haddon 10683	E. T. Gill	8,497.3	4.4 to 5.6	4.95		488.4	7
Imp Daisy 3d 7683	Levi P. Morton	7,386.0		5.66	418.1	488.0	7
Nounon 6569	Geo. C. Hill & Son	7,225.1	4.7 to 7.8	5.78	417.8	487.4	10
Miss Sussix 11070	Chas. Solveson	7,315.0		5.80		487.0	
Champ's Sweet Briar 3d 3021.	Minnesota Agricultural Experiment Station.	7,678.3	4.8 to 7.5	5.43	416.8	486.3	11
Kindness 7234	N. K. Fairbank	9,447.4		4.41	416.6	486.3	4
Imp Belvidera 7644	H. McK. Twombly	8,258.3				486.1	
Herald's Queen 2d 12205	Jas. H. Beirne	8,496.0		4.90	416.3	485.7	3
Florence of Guernsey 6th 3215.	Levi P. Morton	8,809.0		4.82	414.6	483.7	12
Aldine 1211	Ezra Michener	8,615.0		4.92		482.8	13
Madame Tricksey 6519	Geo. C. Hill & Son	7,091.3		5.83	413.7	482.7	13
Deputy's East Lynne 6662	Levi P. Morton	7,977.0		5.18	413.2	482.1	6
Queen Vashti 6051	A. J. Philips					482.0	7
Miss Caro 7304	Levi P. Morton	7,101.0		5.80	411.8	480.5	5
Imp Supreme 3d 7639	H. McK. Twombly	7,954.0		5.17	411.2	479.7	2¼
Jessie H 4348	Ezra Michener	8,653.0		4.86		479.3	7
Bonnie Beauty 5721	Geo. C. Hill & Son	7,108.4		5.77	410.5	478.9	5
Champion Snowflake 3086	A. F. Burk	9,055.0	3.2 to 5.2	4.50	407.5	473.5	7
Rubina T 6223	Jas. H. Beirne	7,480.0		5.4	403.9	471.3	9
Miss Gypsy 9641	John W. Scribner	7,863.0		5.13	403.7	471.9	5
Purity 2315	G. H. Davison	7,226.0				470.5	
Imp Deanie 3d 7643	H. McK. Twombly	7,335.3		5.48	402.0	469.0	4
Tildina 6856	Jas. H. Beirne	8,016.0		5.0	400.8	467.6	7
Fantasia S. 7921	Chas. Solveson	7,864.0		5.0		467.0	
Marguerite of Springside 8544.	Levi P. Morton	6,732.0		5.94	399.8	466.5	5
Imp Trusty of Rhinecliff 8659.	do	8,679.0	4.4 to 5.3	4.60	399.0	465.5	6
Forken Thelma 7920	Chas. Solveson	8,675.0		4.50		465.0	
Young Dolly 3492	N. I. Bowditch	8,013.2		4.95	396.5	462.1	10
Avon Belle 7289	Levi P. Morton	9,069.0		4.37	396.0	462.0	5
Fair Lad's Primrose 3244	Geo. C. Hill & Son	8,789.4		4.49	395.0	460.9	11
Gypsy Lady 9644	do	6,665.3	5.4 to 6.8	5.91	393.0	458.5	2
Nubia's Vesta 5986	do	9,181.7	3.9 to 4.9	4.27	392.3	457.7	8
Pellet 6339	Levi P. Morton	6,995.0	5.2 to 6.4	5.60	392.0	457.3	5
Coleta 7180	do	6,950.0		5.63	391.3	456.5	5
Mindwell 6929	do	7,460.0	4.5 to 6.0	5.24	391.0	456.1	6
Lady Benjamin 9805	Geo. C. Hill & Son	6,815.5	4.35 to 6.8	5.87	390.9	456.0	3
Rosette Ford 4067	New York Agricultural Experiment Station.	6,501.1		6.00	390.1	455.1	5
Queen of Hearts 7124	H. McK. Twombly	7,395.0		5.26	389.0	453.8	2¼
Imp Cesaree 2d 8649	Levi P. Morton	6,647.0		5.85	388.9	453.6	5
Imp Royale 4th 8650	do	7,277.0		5.35	388.0	452.7	5

Yearly butter records over 400 pounds of purebred Guernsey cows, etc.—Continued.

Name and No. of cow.	Owner.	Yield of milk.	Butter fat in milk.		Yield of butter fat.	Yield of butter.	Age at test.
			Range.	Average.			
		Pounds.	*Per cent.*	*Per ct.*	*Lbs.*	*Lbs.*	*Yrs.*
Corona of Haddon 10684	E. T. Gill	7,650.1	4.2 to 6.1	5.41		451.2	5
Gladys of Doylestown 4293	Chas. L. Hill	7,200.0	5.0 to 6.5			450.0	9
Bonnie May 10696	Chas. Solveson	7,236.0		5.30		449.0	
Sarnietta 7248	Levi P. Morton	7,110.0	4.5 to 6.3	5.40	384.0	448.0	5
Floret 6th 4313	Pennsylvania State College.	8,416.0		4.57		447.0	7
Lady Margaret 3d 10314	Chas. Solveson	7,048.0		5.50		446.0	
Regina's Tricksey 5724	Ed. Severin Clark	6,346.0		6.0	381.0	444.5	9
Imp Rose of St. Helene 2d 5952.	Levi P. Morton	6,494.3	5.0 to 6.9	5.97	380.4	443.8	7
Imp Minuet of Rhinecliff 8652.	Geo. C. Hill & Son	5,628.0		6.76	380.5	443.8	6
Imp Pomara 3d 1743	John C. Higgins					443.0	14
Selectrina 6213	H. McK. Twombly	6,495.0		5.85	380.0	442.3	3
Maternalette 2d 6854	N. K. Fairbank	6,765.7		5.60	378.9	442.1	5
Prestoun 6570	Geo. C. Hill & Son	7,126.3	5.0 to 7.0		378.3	441.5	6
Benjamin's Primrose 7820	do	7,197.5	5.0 to 7.0	5.25	378.2	441.4	5
Select of Muster Hill 4061	Levi P. Morton	7,651.0		4.95	378.0	441.0	7
Imp Egypta 8667	do	6,938.0	4.9 to 6.0	5.47	378.0	441.0	4
Duchinette 2d 7237	N. K. Fairbank	7,669.7		4.92	377.3	440.2	4
Acona 5652	Levi P. Morton	7,362.0		5.25	376.5	439.4	7
Lady of Lind Wood 7334	Chas. Solveson	8,820.0		4.40		439.0	
Imp May Rose 4th 7682	Levi P. Morton	8,036.0	4.0 to 5.2	4.68	376.0	438.7	7
Imp Lily of the Spurs 4th 8391.	do	8,645.0		4.35	376.0	438.7	5
Grafin Von N 5708	N. K. Fairbank	6,550.0		5.74	376.0	438.7	3
Miss Chicago 6820	N. I. Bowditch	6,818.5		5.50	375.0	437.5	5
Miss Bishop 7868	Geo. C. Hill & Son	6,034.5	5.5 to 7.3	6.21	374.7	437.1	4
Melba 7618	N. K. Fairbank	8,319.3		4.50		436.8	
Nounon 6569	Geo. C. Hill & Son	6,590.0		5.68	374.3	436.7	6
Imp Rose of the Ville Amphrey 3d 7676.	Levi P. Morton	7,190.0	4.6 to 5.9	5.20	374.0	436.3	4
Imp Comely 7642	H. McK. Twombly	7,279.0		5.13	373.5	435.7	6
Armorel of Haddon 9529	E. T. Gill	7,775.0	4.1 to 6.5	5.30		435.1	4
Robiline 7618	N. K. Fairbank	6,889.7		5.42	373.4	435.1	3
Sunrise 11255	E. T. Gill					434.8	
Careno 4999	N. K. Fairbank	6,200.1		6.0	372.0	434.0	4
Balboa's Select 7741	Chas. Solveson	7,719.0		4.90		432.0	
Fernwood Robinette 3509	N. K. Fairbank	6,450.2		5.74	370.2	431.9	4
Bonnett 3488	N. I. Bowditch	6,618.8		5.60	370.1	431.8	10¼
Coral of Paulsdale 3497	I. J. Clapp	7,294.8	4.7 to 5.75		369.2	430.7	6
Imp Tamar of Rhinecliff 8661.	Levi P. Morton	6,612.0		5.58	368.9	430.4	5
Sweet Briar of Linden Home 9681.	Chas. Solveson	7,175.0		5.20		430.0	
Mernie 4493	Geo. C. Hill & Son	7,160.0		5.13	367.8	429.1	4
Imp Guernsey Rose 5992	H. McK. Twombly	7,412.0		4.96	367.8	429.1	5¼
Rachel of Ellerslie 7660	Levi P. Morton	7,127.0		5.14	366.3	427.4	4
Suke of Rosendale 6520	Geo. C. Hill & Son	6,328.9		5.78	366.1	427.1	5
Samanna 11265	E. T. Gill					427.0	
Electra of Geneva 8059	N. K. Fairbank	7,146.6		5.11	365.0	425.8	2
Miss Cowslip 4662	N. I. Bowditch	7,927.0		4.60	364.7	425.5	8¼
Oriole 4003	New York Agricultural Experiment Station.	6,659.7		5.46	363.8	424.4	4
Button 6010	Levi P. Morton	6,810.0		5.28	363.6	423.7	6
Lucretia of Haddon 10831	E. T. Gill	6,502.8	4.9 to 7.8	6.31		423.5	4
Imp Esperance 5th of the Lohiers 7679.	Levi P. Morton	8,882.0		4.09	363.0	423.5	4
Sunbeam's Dawn 9467	Chas. Solveson	8,259.0		4.40		423.0	
Imp La Pomare 8663	Levi P. Morton	7,393.0		4.90	362.0	422.3	4
Young Nacelle 7294	do	6,367.0		5.71	361.3	421.5	4
Fernwood Roanoke 2d 8297	Geo. C. Hill & Son	6,573.5		5.49	360.9	420.1	6
Victorina 6212	H. McK. Twombly	9,551.0		5.48	359.0	419.0	3
Fernwood Roanoke 3903	Geo. C. Hill & Son	6,530.1		5.48	357.1	417.3	6
Primula 2d 8057	N. K. Fairbank	7,386.6		4.81	355.3	414.5	3
Sammy's Calla Lily 2d 12206	Jas. H. Beirne	7,546.0		4.71	354.7	413.8	2
Arachine 8061	N. K. Fairbank	8,726.1		4.06	354.3	413.3	3
Miss Bishop 7868	Chas. L. Hill	5,738.7			354.3	413.3	3
Glenwood Girl 5th 9111	E. T. Gill					413.2	
Rangoon 7247	Levi P. Morton	7,440.0	5.5 to 7.3	4.76	354.0	413.0	3
Imp Flint 8392	do	7,763.0	4.2 to 5.4	4.56	353.9	413.0	5
Hope Jewell 6801	do	6,276.0		5.63	353.3	412.2	6
Dawn of Geneva 6646	Jas. H. Beirne	7,300.0		4.80	351.6	410.3	
Sammy's Calla Lily 9091	do	7,050.0		5.0	350.8	409.3	
Woglinde 5005	N. K. Fairbank	7,360.4		4.76	350.4	408.8	5
Lassie of Level Green 7967	H. McK. Twombly	5,825.5		6.00	349.5	407.8	3

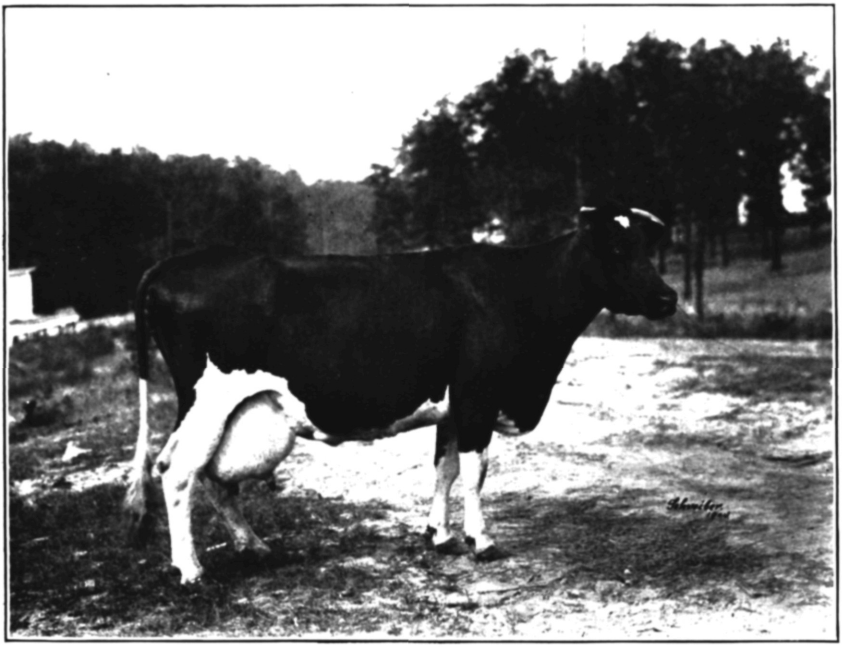


FIG. 1.—SHADYBROOK GERBEN 43753.

Leading Holstein cow in St. Louis cow demonstration contest. Record for 120 days 8,101.7 lbs. milk, 282.601 lbs. butter fat, 3 5 per cent butter fat.

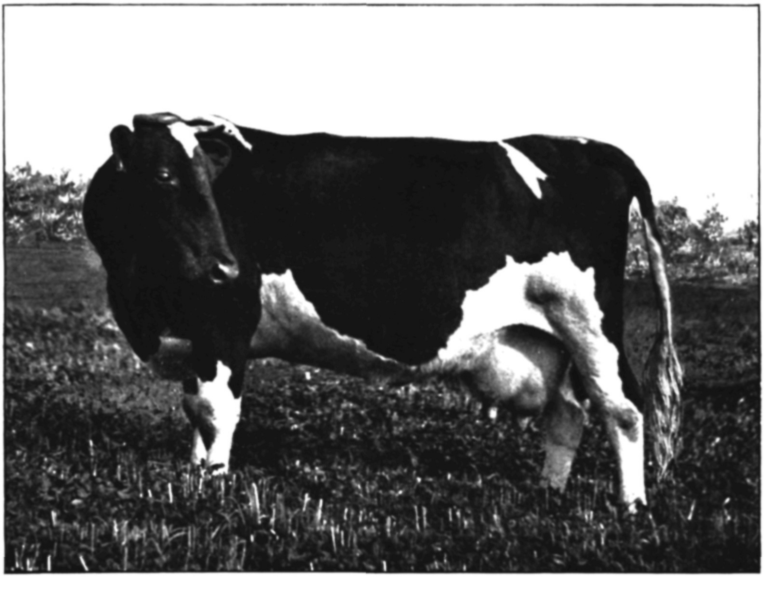


FIG. 2.—SADIE VALE CONCORDIA 32259. PUREBRED HOLSTEIN-FRIESIAN.

Record of 694.3 lbs. milk, 24.51 lbs. butter fat in 7 days; 2,752.6 lbs. milk, 98.94 lbs. butter fat in 30 days; 5,093.6 lbs. milk, 176.42 lbs. butter fat in 60 days.

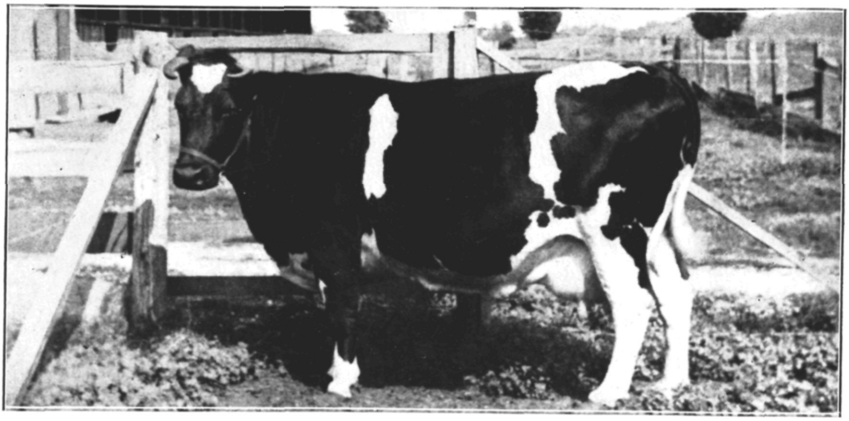


FIG. 1.—BELLE SARCASTIC 1118. PUREBRED HOLSTEIN-FRIESIAN.

Record for 16 months 30,514.2 lbs. milk, 915.9 lbs. butter fat; record for 1 year 23,189.6 lbs. milk, 721.7 lbs. butter fat; record for 1 week 583.6 lbs. milk, 20.27 lbs. butter fat; record for 1 day 86.7 lbs. milk, 3.4 lbs. butter fat.

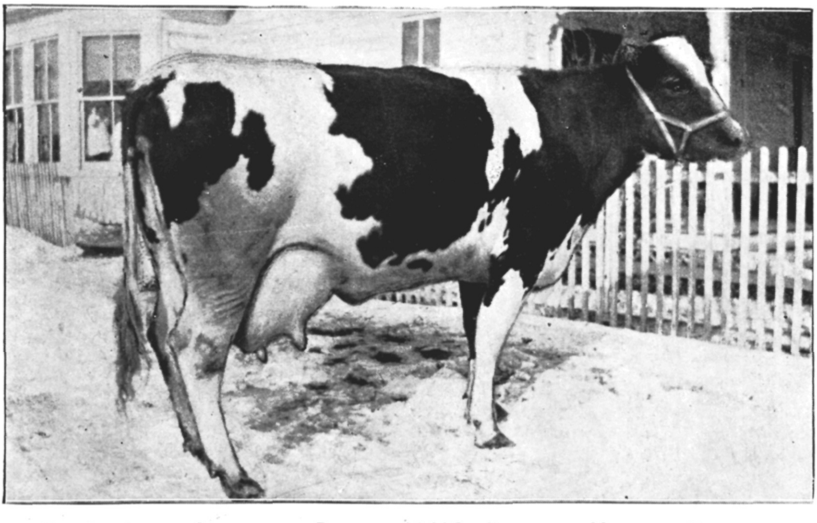


FIG. 2.—AAGGIE CORNUCOPIA PAULINE 42426. PUREBRED HOLSTEIN-FRIESIAN.

Aaggie Cornucopia Pauline 48426 was calved March 5, 1899. She dropped her first calf at 1 year, 11 months, 8 days old. During a 7-day test soon after she produced 317.8 lbs. milk, containing 11.748 lbs. fat. Dropping her second calf at 2 years, 11 months, 27 days old, she produced during a 7-day test soon after 566.4 lbs. milk, containing 19 566 lbs. fat. Dropping her third calf at 3 years, 11 months, 9 days old, she produced during a 7-day test soon after 599.2 lbs. milk, containing 21.953 lbs. fat. Dropping her fourth calf at 4 years, 11 months, 4 days old, she produced during a 7-day test soon after 659.2 lbs. milk, containing 27.459 lbs. fat. At this freshening she was tested 30 days (including the 7 days reported above). She produced 2,640.3 lbs. milk, containing 110.093 lbs. fat. She was retested twice during the 30 days of this last test. The first retest was for 24 hours, the second was about a week after the first for 48 hours. In both periods of retesting she was under constant watch care, night and day, by employees of New Jersey Experiment Station.

Yearly butter records over 400 pounds of purebred Guernsey cows, etc.—Continued.

Name and No. of cow.	Owner.	Yield of milk.	Butter fat in milk.		Yield of butter fat.	Yield of butter.	Age at test.
			Range.	Average.			
		Pounds.	*Per cent.*	*Per ct.*	*Lbs.*	*Lbs.*	*Yrs.*
Bonnie Beauty 2d 10082	Geo. C. Hill & Son	5,385.0	6.0 to 7.1	6.46	348.9	407.1	3
Imp May Rose 5th 7681	Levi P. Morton	5,953.0	4.0 to 7.4	5.84	348.0	406.6	3
Heiress 2d 5827	S. C. Hall	6,147.0		5.50		405.6	6
Miss Carrie 5290	Levi P. Morton	6,908.0		5.03	347.4	405.4	8
Materna 1334	N. K. Fairbank	8,469.0		4.81	347.4	405.4	9
Young Celia 4513	N. I. Bowditch	7,387.5		4.70	347.2	405.0	8¼
Alena 6099	Levi P. Morton	7,307.0		4.72	344.9	402.4	7
Shirtle of Haddon 9556	E. T. Gill					401.8	
Imp Rose of Lilyvale 3d 8645	Levi P. Morton	5,679.0		6.05	343.6	400.9	4
Imp Gypsy of Natick 4435	do	7,357.0	4.2 to 5.0	4.66	343.0	400.2	10
Imp Queen 4th 7646	do	6,092.0		5.63	343.0	400.2	3¾

Yearly milk records over 10,000 pounds.

Name and number.	Owner.	Milk.
		Pounds.
Lily Alexandre 1059	Francis Shaw	12,856.0
Lilyita 7241	Jas. H. Beirne	12,812.73
Miss Bobilink 2157	N. I. Bowditch	12,437.0
Lily Ella 7240	Jas. H. Beirne	12,282.62
Gypsy of Racine 9639	Geo. C. Hill & Son	12,247.50
Glenwood Girl 6th 9113	E. T. Gill	12,184.31
Glenwood Girl 8th 10830	do	11,310.13
Imp Bretonne 3660	Levi P. Morton	11,218.75
Lucretia's Daughter 11256	E. T. Gill	11,084.63
Quibble 6017	Levi P. Morton	10,548.0
Vanessa 2100	Sydney Fisher	10,504.0
Imp Passagere 2d 1582	Levi P. Morton	10,316.25
Imp Esmeralda 8657	do	10,174.0
Lady Beth 3926	J. R. Huston	10,031.0
Cousin Beatrice 7303	Levi P. Morton	10,023.0
Coralie 446	Wm. M. Paul	10,000.0

RECORDS OF PUREBRED HOLSTEIN COWS.

The following table contains the records of a large number of purebred Holstein cows:

Milk and butter-fat records of single purebred Holstein cows for one year.

Owner.	State.	Name of cow.	Age.	Time in milk.	Milk yield.	Average fat in milk.	Butter fat yield.
			Yrs.	*Mos.*	*Pounds.*	*Per ct.*	*Pounds.*
T. G. Yeomans & Son	New York	Aaggie 2d[a]	5¾	12	20,763.2		
		Princess of Wayne[a]	12	12	29,008.7		
Smith, Powell & Lamb	do	Clothilde[a]	6¼	12	26,052.1		
		Clothilde 2d[a]	4¾	12	23,602.6		
		Boutje[a]	7¼	12	21,679.5		
D. B. Whipple	do	Pietertje 2d[a]	9¾	12	30,318.5		
A. B. Chase	do	Lola's Beauty 37941			12,717.6		
A. A. Cortelyou	New Jersey	Susie De Kol			11,612.0		
John B. Irwin	Minnesota	Kaan Marie Mechthild	2	12	12,590.0	3.32	418.0
C. F. Stone	Kansas	May Overton		12	13,759.3		
W. S. Nelson	Missouri				12,614.0		
H. D. Roe	New Jersey	Aaggie Cornucopia 21127	7	11¼	11,309.4	4.14	467.65

[a] Record attested by owner.

Milk and butter-fat records of single purebred Holstein cows for one year—Continued.

Owner.	State.	Name of cow.	Age.	Time in milk.	Milk yield.	Average fat in milk.	Butter fat yield.
			Yrs.	*Mos.*	*Pounds.*	*Per ct.*	*Pounds.*
H. D. Roe	New Jersey	Mulvie	.....	11	9,981.0	3.99	397.95
		Dorinda Wayne 2d	3	11	7,691.0	4.21	323.53
		Princess Aaggie Cornucopia.	3	12	9,489.5	4.18	396.68
		Aaggie Ideals Black Beauty.	3	10½	10,257.0	3.68	377.80
		Jetske Roe 14329	8	12	12,035.0	3.59	432.15
		Jarie Pauline De Kol	.....	12	8,306.8	4.42	366.84
		Aaggie Cornucopia 3d	.....	11	10,327.8	3.62	373.86
		Zanca De Kol	2	12	7,604.75	4.65	355.32
		Zanca Wayne	4	12	11,249.5	3.83	431.10
		Jetske Roe's Aaggie	3	12	9,333.0	3.98	371.19
		Aaggie Cornucopia 2d	6	10½	11,737.4	3.94	462.76
		Shadeland Zora 2d	5	11	11,053.5	3.58	396.0
		Jetske Roe's Aaggie's Artis,	2	12	10,688.5	3.21	343.71
		Armyns An. 4th	2	12	10,009.5	....	....
		Pietertje De Gode Lady DeKol.	2	12	10,025.25	....	....
		Lilith Pauline De Kol 43434.	5	8⅐	19,061.4	3.24	617.36
		Beryl Wayne 32496	7	10½	17,165.8	3.50	600.77
		Brookside Lilith 34025	7	12	15,525.8	3.72	577.87
		May Hartog of Brookside 36420.	.....	12	13,377.8	3.78	505.80
		Roxie Wayne 25207	7	12	16,356.4	3.28	536.68
		Roxie Wayne Pauline 48427.	3	12	15,045.5	3.30	496.50
		Dorothy Ondine Wayne 3d.	2	12	9,465.0	3.75	355.47
		.........do	3	12	11,437.8	3.43	399.10
		Dorindas Roxie 14331	8	12	13,549.8	3.93	531.94
J. R. McPherson	.....do	Intje 2d[a]	7⅔	11½	20,011.9	....	....
C. A. Wheeler	New York	Gelsche[a]	7	12	22,863.0	....	....
Agricultural College	Michigan	Houwtje D.[a]	6	10	17,475.6	3.33	581.90
		Rosa Bonheur[a]	10	10	17,558.8	....	....
Henry Stevens & Sons.	New York	Inca 2d	.....	10	17,345.0	....	....
		Inca	7	7	14,046.0	....	....
		Inca 4th	4	9	20,645.8	....	....
		Inca 5th	3	......	11,184.0	....	....
		Inca 6th	2	9	13,977.5	....	....
		.....do	4	9	15,109.0	....	....
		Mildred De Kol	.....	10	12,000.0	....	....
Agricultural College	Kansas	College Gerben	.....	......	9,220.0	3.26	300.2
H. V. Noyes	New York	....	.....	......	11,053.0	....	....
					12,991.0	....	....
W. S. Carpenter	Michigan	Goldie Clothilde	.....	......	9,189.5	....	....
		Goldie's Last	.....	......	10,498.0	....	....
		Bettern Buchanan	.....	......	8,763.0	....	....
		St. Ann's Gerben A	.....	......	9,980.0	....	....
		Empress Josephine, 3d Gerben.	.....	......	8,395.0	....	....
		Paula Jewel	.....	......	9,254.0	....	....
		Bell Penn	.....	......	8,659.0	....	....
		Rosa Bonheur 5th 11227	.....	......	17,043.45	2.75	469.0
		Belle Sarcastic 23039	.....	12	23,189.6	3.11	721.68
		Houwtje D. 12005	.....	12	19,025.0	3.47	660.20
H. D. Hughes	Illinois	No. 1	.....	......	7,720.0	3.39	261.7
		No. 2	.....	......	9,508.0	3.49	331.8
		No. 3	.....	......	8,102.0	3.39	274.7
		No. 11	.....	......	5,431.0	3.40	184.6
		No. 12	.....	......	7,404.0	4.60	340.6
		No. 14	.....	......	11,311.0	2.76	312.2
		No. 15	.....	......	5,611.0	3.40	190.8
		No. 16	.....	......	11,111.0	2.69	299.3
		No. 17	.....	......	6,879.0	3.40	233.9
		No. 18	.....	......	10,939.0	3.58	391.6
Miss M. D. E. (Mrs. Sherman).	California	....	.....	......	10,350.0	4.2	434.7
		....	.....	......	13,505.0	3.64	491.6
Gillett & Son	Wisconsin	Johanna Rue	8	12	20,340.4	3.46	704.0
		Johanna Rue 2d	6	12	18,288.9	3.62	662.7
		Johanna 5th Clothilde	6	12	16,452.1	3.83	630.02
		Johanna De Kol	4	10	13,760.4	3.73	513.3
		Johanna Aaggie	4	11	16,102.1	3.81	613.0
		Johanna DeKol 2d	2	10½	11,944.4	3.67	438.4
		Johanna de Pauline	2	10½	11,058.7	3.74	413.6
		Duchess Clothilde	5	12	16,499.8	3.40	560.9

[a] Record attested by owner.

Milk and butter fat records of single purebred Holstein cows for one year—Continued.

Owner.	State.	Name of cow.	Age.	Time in milk.	Milk yield.	Average fat in milk.	Butter fat yield.
			Yrs.	*Mos.*	*Pounds.*	*Per ct.*	*Pounds.*
Gilbert & Son	Wisconsin	Colantha 4th	3	11⅓	14,951.5	3.86	577.2
		Johanna 4th	10	12	14,946.5	3.50	523.12
		Johanna 5th	4	12	16,186.3		
		Johanna May	6	10	12,176.7		
		Johanna Clothilde	4	11⅛	13,467.0	4.08	549.5
		Johanna Rue 3d	3	12	15,416.4	3.61	556.5
		Johanna Rue 4th	2	10⅛	11,285.6	3.49	394.0
		Johanna De Kol 3d	2	12	10,675.1	3.59	383.4
		Johanna Ruth	2	12	12,178.0	3.95	481.0
		Johanna de Colantha	2	12	12,787.0	3.88	496.1
		Johanna Colantha	4	12	13,428.8	3.82	512.9
		Colantha 4th's Johanna	4	12	19,309.3	3.59	693.2
State Institution for the Blind.	Illinois	No. 1	10		13,019.0		
		No. 3	9		10,086.0		
		No. 4	8		10,028.0		
		No. 7	9		10,179.0		
T. A. Mitchell	New York	Nanette 3d's Pledge 2d 39518.	9	12	8,911.4	3.73	332.39
		Tehee Artis Paul 44891	7	12	11,832.6	3.46	409.40
		Colie 3d's C. 48871		11	10,421.0	3.65	380.36

One-year records of single purebred Holstein cows at the Eastern Michigan Asylum.

Name of cow.	Time.	Milk yield.	Name of cow.	Time.	Milk yield.
	Days.	*Pounds.*		*Days.*	*Pounds.*
Pontiac Peace	248	8,973	Pontiac Hartog Mechthilde	263	8,361
Pontiac Justice	369	12,933	Anna Clothilde 5th	366	10,404
Pontiac Celeste	315	7,725	Jennie Snowflake	371	10,164
Pontiac Akkrum	289	8,367	Pontiac Clothilde Inka	300	9,439
Pontiac Euterpe	298	9,248	Pontiac Aurora Mechthilde	331	8,464
Pontiac Pauline Pietertje	308	7,516	Pontiac Aaggie Pietertje	329	10,748
Pontiac Terpsichore	365	8,510	Lady Hesseltje	241	9,610
Pontiac Erato	365	8,404	Hesseltje 4th	246	10,542
Pontiac Caliope	343	9,876	Hesseltje 5th	366	11,443
Pontiac Asteria	318	9,103	Pontiac Vesta Hesseltje	360	9,651
Pontiac Hengeweld	332	11,655	Piquo Lady	324	11,211
Pontiac Pauline Beets	327	9,356	Pontiac Ceres	365	11,307
Pontiac Carlotta	365	8,115	Pontiac Piquo	309	10,214
Pontiac Tritomia	308	7,460	Pontiac Pauline Mahomet	366	11,469
Pontiac Pietertje	364	9,056	Pontiac Theia	263	8,277
Pontiac Hengeweld Korndyke	339	7,800	Pontiac Parthenia	344	10,774
Almeda Princess De Kol	284	9,859	Pontiac Queen Cashe	324	9,528
Trix Mercedes De Kol	288	9,344	Pontiac Hesseltje	295	10,299
Lady Ykema De Kol	268	8,228	Pontiac Lachesis	309	9,749
Detry Belle	307	7,899	Pontiac Atropos	365	10,956
Jochemke Postma's Lady Bell	365	13,502	Pontiac Lunde De Kol	356	11,865
Hesseltje 3d	343	11,762	Pontiac Lunde	365	12,118
Terra	366	11,209	Pontiac Shadeland Boon	316	7,778
Inka Darkness 2d's Queen	365	13,586	Pontiac Triumph	361	11,578
Lunde Beauty's De Kol	314	11,472	Pontiac Winter	350	7,497
Pontiac Mechthilde	366	13,229	Pontiac De Vries De Kol	314	10,410
Pontiac Pietertje Mechthilde	366	10,920	Pontiac Coquette	365	10,203
Pontiac Hesseltje Mechthilde	327	11,863			

The milk and butter record of Pauline Paul, purebred Holstein-Friesian, for 365 days, commencing February 8, 1890, is as follows: Milk, 18,669.6 pounds; butter, 1,153 pounds 15¾ ounces. Her largest day's record was 69.6 pounds of milk and 4 pounds 9½ ounces butter. This record is not official, but was attested by the owner, Mr. D. F. Wilber, of New York.

RECORDS OF PUREBRED JERSEYS.

A large number of records of single purebred Jersey cows have been collected and are presented in the following table:

Milk and butter-fat records of single purebred Jersey cows for one year.

Owner.	State.	Name of cow.	Age.	Yield of milk.	Fat in milk.	Yield of butter fat.	Yield of butter.
			Yrs.	*Pounds.*	*Per ct.*	*Pounds.*	*Pounds.*
Hood Farm	Massachusetts	Tormentor's Lass		9,553.5	5.02	479.57	
		Torona's Lilian		9,449	5.66	534.54	
		Nannie of H. F		5,864.1	6.04	354.39	
		Plumage		8,012.6	4.94	395.56	
		Chroma 3d, H. F		7,391	4.65	343.84	
		Oonan 11th, H. F		7,179.1	5.53	396.77	
		Pink Ring		7,100.9	5.53	392.52	
		Pink Ring 2d		6,696.5	5.29	353.99	
		Misseldine		6,808.1	5.63	383.61	
		Willia		6,707.4	5.45	365.79	
		Masher		6,664.5	6.07	404.86	
		Sophie's Lily		6,577.6	5.56	365.78	
		Sophie 3d of H. F		6,546.7	5.81	380.26	
		Sophie 4th of H. F		6,178.03	5.29	326.95	
		Duke's Jessie 2d		8,818.6	5.08	447.69	
		Hood Farm Belle		6,898.9	5.48	377.87	
		Sophie 5th, H. F		5,615.4	5.94	333.47	
		Sophie 6th, H. F		5,277.4	5.96	314.78	
		Nina Gordon		6,445.6	5.81	374.38	
		H. F. Bisson		5,628.9	5.41	304.78	
		Hood Farm's Fancy		5,801.9	5.86	340.07	
		Sophie 2d of H. F		8,936.4	5.73	512.48	
		Milly Judd		5,288.2	5.65	298.95	
		Corrilla B		6,756.6	4.63	312.70	
		Seraph		7,360.8	4.95	364.51	
		Oneida 2d		10,171.2	5.53	562.71	
		Lois Emerson		10,575.2	4.46	471.87	
		Koffee's Winnie		10,485.3	4.96	520.50	
		Merry Maiden		10,487.7	5.61	588.51	
		Sophona		9,060.4	6.05	548.47	
		Hood F. Catharine		6,960.8	5.44	378.94	
		Statuesque of H. F		5,647.3	5.51	311.21	
		Leoni 2d		6,215.1	5.76	357.98	
		Sitka A		5,920.6	5.14	304.46	
		Gloria Patria		5,165.3	5.66	292.19	
		Postscript		6,401.5	4.54	290.87	
		B. B. 7th of H. F		6,374.7	5.04	321.26	
		Ogontz		6,295.1	4.99	314.31	
		Julippa		6,035.6	5.93	357.79	
		Liphie		5,805.2	5.82	337.90	
		Tutney		6,029	5.88	354.49	
		Sophie 8th of H. F		6,648.4	6.18	411.16	
		Oonan's Landseer Wax		6,820.5	5.58	380.73	
		Carica		6,643.3	5.53	367.12	
		Kate Gordon 2d		7,497.0	5.72	429.11	
		Tremona		5,844.9	5.70	333.21	
		Silver Merry Maiden		6,737.2	5.25	354.04	
		Helen Barry		6,652.4	5.20	345.75	
		Narletta		6,254.3	5.75	359.37	
		Chestnuts		7,339.4	6.21	455.85	
		Modita		7,006.5	5.35	374.72	
		Crusta		7,455.1	4.53	337.39	
		Sophie 9th, H. F		7,789.1	4.69	365.47	
		Sophie 10th, H. F		7,265.7	5.57	404.92	
		Minty 8th of H. F		6,565.3	5.35	351.36	
		Byblis 4th		5,632.3	5.44	306.35	
		St. Jeannaise 9th		5,256.9	5.37	282.29	
		Fancy Pet 2d		5,350	5.09	272.33	
		Lucy Lee H. 2d		5,595.6	5.87	328.68	
		B. B. 24th of H. F		6,253.6	5.74	359.02	
		Figgis 2d		6,144.8	5.62	345.39	
		Figgis 2d [a]	$2\frac{1}{3}$	6,388.0	5.05	322.62	
		Oonan 11th [a]	$4\frac{5}{6}$	9,138.0	5.46	498.07	
		Tonona 9th [a]	$2\frac{1}{6}$	8,034.0	5.63	452.43	
		Figgis 8th [a]	$2\frac{1}{3}$	5,357.0	5.71	305.85	
		Oonan 25th [a]	$3\frac{5}{12}$	8,274.0	5.38	445.38	
		Torona 12th [a]	2	7,990.0	5.33	425.96	
		Figgis 5th [a]	$2\frac{5}{12}$	5,510.0	5.37	295.80	
		Tonona 10th [a]	$2\frac{7}{12}$	7,131.0	5.14	366.87	
		Tonona 11th [a]	$2\frac{1}{6}$	6,156.0	5.25	323.40	
		Sophie 10th [a]	$6\frac{1}{12}$	8,683.0	5.51	478.62	

[a] Record authenticated by Hatch Experiment Station, Massachusetts.

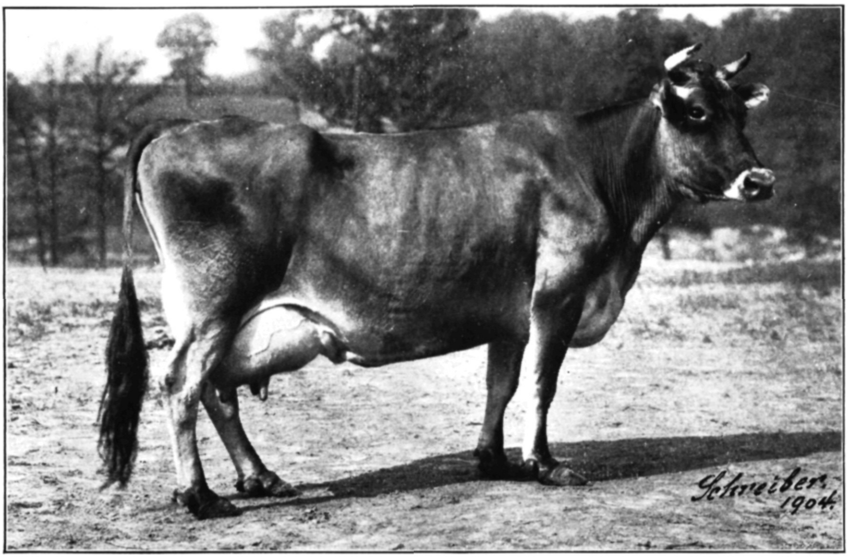


FIG. 1.—LORETTA D 141708. PUREBRED JERSEY.

Champion cow in classes A and B, World's Fair dairy demonstration, St. Louis, 1904. Record for 120 days 5,802.7 lbs. milk, 4.8 per cent fat, 330.03 lbs. estimated butter.

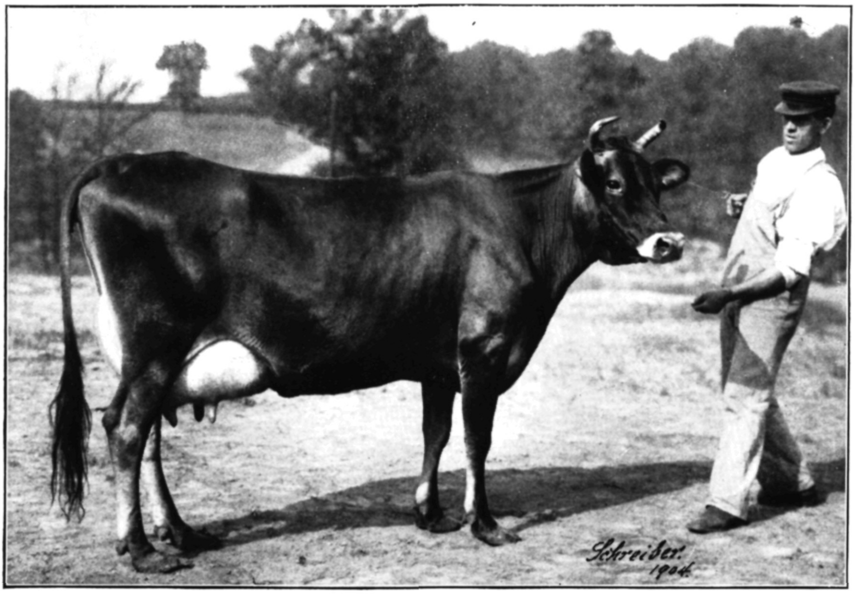


FIG. 2.—EURYBIA 143822. PUREBRED JERSEY.

Third cow in class A, World's Fair dairy demonstration, St. Louis, 1904. Record for 120 days 5,439.6 lbs. milk, 4.8 per cent fat, 310.47 lbs. estimated butter.

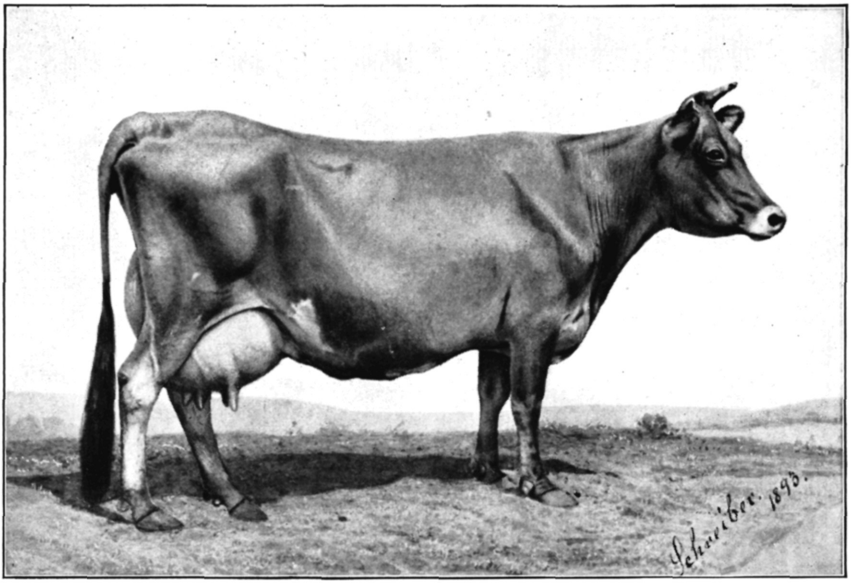


FIG. 1.—BROWN BESSIE 74997. PUREBRED JERSEY.

Champion butter cow at World's Fair, Chicago, 1893. Record for 90 days 3,634 lbs. milk, 216.64 lbs. butter.

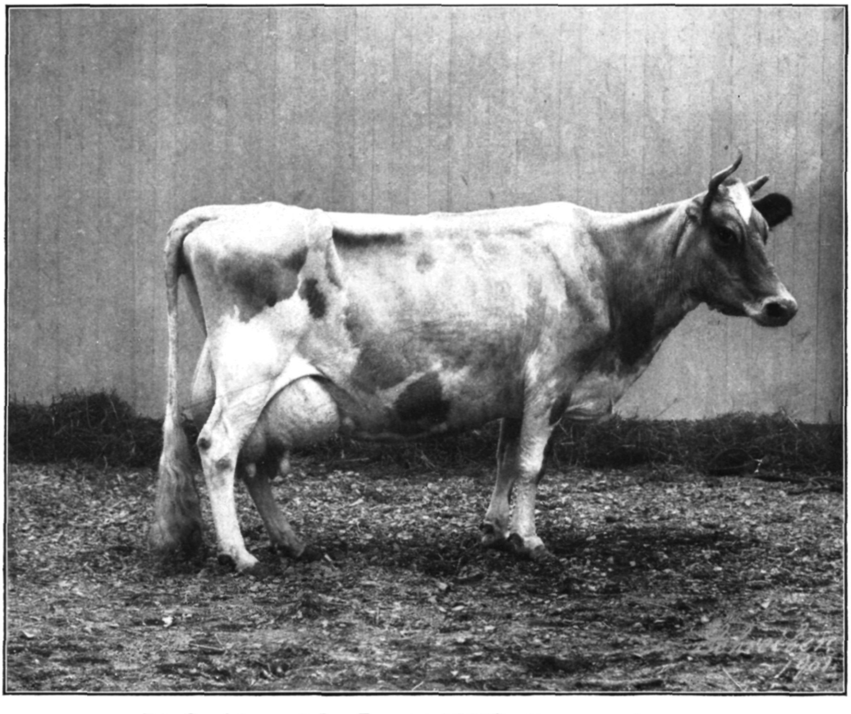


FIG. 2.—AGNES OF ST. FRANCIS 10619. PUREBRED JERSEY.

Record for 1 year 9,420 lbs. milk; 27.06 lbs. butter in 7 days.

Milk and butter-fat records of single purebred Jersey cows for one year—Continued.

Owner.	State.	Name of cow.	Age.	Yield of milk.	Fat in milk.	Yield of butter fat.	Yield of butter.
			Yrs.	*Pounds.*	*Per ct.*	*Pounds.*	*Pounds.*
Hood Farm	Massachusetts	Duke's Signal Queen 2d	.....	11,320.4	4.63	524.25	....
		Oneida	.....	12,734.7	4.37	556.10	....
		Kathletta's Fancy	.....	11,784.1	4.94	581.79	....
		Miss Helen Brice	.....	10,979.6	5.02	550.79	....
		Blizz Pogis	.....	9,794.9	4.74	464.19	....
		Sophie Hudson	.....	11,496.1	5.34	614.48	....
		Onwa	.....	10,230.0	5.60	573.38	....
		Dunny Pogis 2d	.....	7,098.9	5.95	422.28	....
		Indulgence	.....	6,893.4	5.48	377.09	....
		Romena of H. F	.....	7,176.2	5.94	426.00	....
		Portfolio	.....	7,108.2	5.02	356.81	....
		Personia	.....	5,855.2	5.13	300.54	....
		Figgis	.....	7,444.1	5.45	405.39	....
		Marna	.....	6,313.9	4.92	310.51	....
		Pansy's Thoughts	.....	7,353.4	5.37	394.56	....
		Philena S	.....	6,308.9	5.83	368.10	....
		Straight lace	.....	7,592.7	5.17	392.67	....
		Virginia's Oonan	.....	6,139.4	5.60	344.09	....
		Ida Belle Landseer	.....	7,972.7	4.73	377.19	....
		Marissa	.....	6,842.4	5.35	366.27	....
		Tonnage Girl	.....	7,088.0	5.43	384.96	....
		Stalactite 2d	.....	9,221.8	5.19	478.39	....
		Bissons Fancy Pogis	.....	8,767.7	5.93	520.32	....
		Elphie May	.....	8,803.3	5.38	473.24	....
		B. B. 20th of H. F	.....	7,676.9	5.32	408.61	....
		B. B. 18th of H. F	.....	7,565.4	5.53	417.97	....
		Maquilla of H. F	.....	7,281.0	6.03	438.97	....
		Elsie Wolcott	.....	6,792.4	5.11	347.20	....
		Tormentors Fancy Wax	.....	6,836.2	4.99	341.13	....
		Oonan 4th of H. F	.....	8,424.4	5.38	452.80	....
		Koffee's Jessie	.....	6,453.5	5.89	380.20	....
		Sophie 1st of H. F	.....	6,538.1	5.49	358.69	....
		Hood Farm Waxie	.....	5,848.2	4.75	277.67	....
		Fancy Adonis	.....	5,672.9	5.40	306.21	....
		Northern Lassie	.....	5,478.4	5.44	298.26	....
		Sophie 7th of H. F	.....	9,040.2	5.35	483.29	....
		Costa Rica	.....	10,747.9	5.90	634.50	....
		Bisson's Fancy Pogis	.....	8,793.0	6.07	533.7	....
F. H. Scribner	Wisconsin	Ida of Glendale	6	13,474.8	4.71	634.38	....
		Edith's Faith	10	8,254.1	7.03	579.91	....
		Mabellena	6	8,662.7	6.10	528.14	....
		Mabel's Surprise	5	7,504.9	5.77	433.16	....
		Avileur	6	7,502.5	4.68	351.30	....
		June Princess	6	5,883.4	6.52	383.54	....
		Hammonia's Daisy	5	6,730.8	5.10	343.08	....
		Loa	6	7,921.8	5.23	414.24	....
		Minoene	6	6,414.6	5.43	348.11	....
		Heth Pogis	5	6,804.1	6.31	429.06	....
		Loretta D	3	7,482.4	5.26	393.79	....
		Ripon Rosa	6	7,652.0	5.59	428.04	....
Paul Cunningham	Massachusetts	Chloe	8	7,732.5	5.40	417.55	....
		Miranda	6	7,300.5	5.8	423.43	....
		Zillah	4	5,174.0	7.0	362.18	....
		Dutchess	6	6,848.0	5.8	397.18	....
		Jessica	7	6,989.0	5.2	363.42	....
		Beatrice	4	6,602.5	6.0	396.15	....
		Viking's Princess	6	6,173.5	5.6	345.72	....
Adam M. Stevens	Washington	Beatrice	.....	8,561.0	6.23	533.4	....
		Twenty-six	.....	8,443.0	6.21	523.2	....
		Greeley's Nina	.....	7,333.0	7.5	550.0	....
		Jersey Buff	.....	7,575.0	6.5	492.3	....
		Baby Butterfly	.....	6,408.0	6.1	390.9	....
		Belle Grace	.....	7,436.0	5.7	423.8	....
		Belle of Kittitas	.....	7,219.0	6.3	454.8	....
Guy H. Miller	Southern California.	Elaine C	.....	7,977.87	5.35	426.8	....
		Nettie Underwood	.....	7.593.87	5.78	439.0	....
F. L. Davis	Vermont	Edith Lambert D	3	8,416.0	5.56	468.0	....
Springside Jersey Farm.	Texas	....	.....	7,300.0	5.59	408.0	....
		....	2	6,223.0	5.2	323.6	....
Dr. H. M. Moulton	Maine	Princess	.....	9,091.0	....	....	....
		Desire	.....	7,546.0	....	....	....
		Nellie Bly	.....	6,675.0	....	....	....
		Victoria Robbins	.....	8,133.0	....	....	....
		Maud Robbins	.....	7,096.0	....	....	....
Michigan Agricultural College.	Michigan	College Pandora 126112	.....	6,758.6	5.56	375.8	....
		College Pogis 4th's Pet 165669.	.....	7,743.6	4.71	364.7	....
		College Pogis 4th 125896	.....	7,413.1	4.69	347.7	....
		College Pogis 75078	.....	[a]11,203.0	4.93	551.88	....

[a] For 13¼ months.

Milk and butter-fat records of single purebred Jersey cows for one year—Continued.

Owner.	State.	Name of cow.	Age.	Yield of milk.	Fat in milk.	Yield of butter fat.	Yield of butter.
			Yrs.	*Pounds.*	*Per ct.*	*Pounds.*	*Pounds.*
H. C. Carpenter	Minnesota	Louise		7,005.0	4.21	294.9	
		Fawny		4,875.0	4.75	231.5	
		Baby		4,670.0	6.11	285.3	
		Jette		6,240.0	4.81	300.1	
P. J. Cogswell	New York	Exile's St. Lambert Queen		11,023.0			
Henry A. Slack	do	Rosalind Lowndes		9,512.0	5.35	509.0	
		Jennie Warren		7,443.0	5.35	398.3	
		Dora Lowndes		8,313.0	5.35	444.8	
		Belle Lowndes		7,157.0	5.35	383.0	
F. E. Dawley	do	Agnes of St. Francis		9,420.0			
		Dots Lily		9,460.0	6.1	577.0	
W. J. Webster	Tennessee	Bisson's Belle	7⅓	8,412.4	10.5	882.0	[a]1,028.9
D. F. Appleton	Massachusetts	Eurotisama	5				[b]945.6
Columbia Jersey Cattle Co.	Tennessee	Landseer's Fancy	11⅙				[b]936.9
V. E. Fuller	Ontario	Mary Anne of St. L.	4				[b]867.9
A. B. Darling	New Jersey	Eurotas	8				[b]778.1
G. W. Farlee	do	Gazella 3d	5	10,074.0	6.40	644.4	751.6
C. O. Ellms	Massachusetts	Jersey Belle of Scituate	6				705.0
G. W. Farlee	New Jersey	Signoretta	3⅙	7,621.0	7.65	583.2	680.4
Shelby Kinkead	Kentucky	Dollie's Valentine	5	[c]10,218.3	5.68	579.9	[c]676.5
Miller & Sibley	Pennsylvania	La Petite Mère 2d	6¾	16,699.5	3.39	566.0	660.4
J. H. Sutliff	Connecticut	Pansy					574.8
Miller & Sibley	Pennsylvania	Fawn of St. Lambert	3¾	14,535.8	3.37	490.0	571.6
Thos. Motley	Massachusetts	Flora	4				[d]511.1

[a] This amount, if normal butter, would call for an abnormally high fat content in the milk, as calculated in the table, and this renders the record open to question.

[b] Not confirmed.

[c] Confirmed.

[d] Record, 350 days.

RECORDS OF PUREBRED RED POLLED COWS.

A few records of purebred Red Polled cows are shown in the following table:

Milk and butter-fat records of single purebred Red Polled cows for one year.

Owner.	State.	Name of cow.	Age.	Milk yield.	Average fat.	Butter-fat yield.
			Yrs.	*Pounds.*	*Per cent.*	*Pounds.*
J. W. Martin	Wisconsin	Chloe T-1 10097	8	7,915	4.25	336.6
		Nera N-5 3505		12,204	3.85	469.8
		Dutchess of Wis 5		11,015	3.90	429.58
		Balsio 8330	11	9,200	4.14	380.9
Frank Hartline	Ohio	Nellie's Lady 12715		7,649	3.42	261.60
S. S. Chandler	Wisconsin	Ruby Twin	1	10,239	5.18	530.4
V. T. Hills	Ohio	Mayflower 2d		10,458		[a]547.0
		Susie		11,023		[a]493.0
		Easter		8,478		[a]368.0
		Tryste		9,202		[a]403.0
		Flora 2d		7,464		[a]374.0

[a] Butter.

RECORDS OF PUREBRED SHORTHORNS.

A few records of purebred Shorthorn cows are presented in the following table:

Milk and butter-fat records of single purebred Shorthorn cows for one year.

Owner.	State.	Name of cow.	Time in milk.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Mos.	*Pounds.*	*Per ct.*	*Pounds.*
J. K. Innes	New York	Kitty Clay 5th	12	9,502.8		
		Eleanor Lee 2d	9	6,829.8		
		Rosebud	10	6,558.3		
		Pansy	$9\frac{2}{3}$	4,452.5		
		Mabel Clay	$9\frac{2}{3}$	7,725.8		
		Dorothy	10	8,336.7		
		Carrie Lee	12	5,746.5		
		Mamie Clay 2d	9	10,315.1		
		Lady Fillpail	12	8,868.0		
		Magnolia Clay	11	8,122.7		
		Lady Jane Grey	$11\frac{1}{3}$	6,536.0		
		Lygia	9	7,002.3		
		Paleface	$8\frac{1}{3}$	6,895.8		
		Roan Duchess	$7\frac{1}{2}$	5,336.1		
		Fillpail	7	4,095.4		
		Lady Buttercup	7	3,922.3		
		Ida Peri	$7\frac{1}{6}$	3,917.8		
		Lady Clare	$7\frac{1}{2}$	4,589.7		
		Lady Benton	$7\frac{2}{3}$	3,898.9		
		Lizzie Clay	$5\frac{1}{2}$	3,556.0		
		Mamie Clay 2d	$6\frac{1}{6}$	7,877.9		
H. C. Carpenter	Minnesota	Flora		4,350	5.00	217.5
C. O. McAhron	Missouri			6,447		
——	Wisconsin	Maud		10,100	4.15	419.0
——	do	Janesville Rose		7,833	4.0	313.3
Michigan Agricultural College.	Michigan	Mary Wellington 5th	12	8,696.4	3.89	338.3
		Lady Knightly 15th	12	9,710.9	3.59	348.6
		Pansy of Stanton 35th	12	10,054.8	3.89	391.1
Iowa State College	Iowa	College Moore	10	8,450	4.13	349.2
		Reward of Nora's Duke		9,326.8	4.13	385.1

It is of interest to note the uniformly good records of certain families of cows—for example, the Johanna family of Holsteins, page 118. The old adage "like produces like" is demonstrated here. Dairymen who have unusually good cows should make the most of them in building up a herd of large producers, and should consider carefully their value when tempting offers are made. Many a dairyman's success in building up a good herd is due to one or two extraordinary cows which were his foundation stock.

MILK AND BUTTER-FAT RECORDS OF SINGLE PUREBRED COWS FOR SERIES OF YEARS.

These records give examples of persistency in milk production, and show that a cow's period of usefulness may extend over eight or ten years and even longer.

The compilation simply includes a few records from the prominent dairy breeds that have come to our notice. Such a list could of course be extended almost indefinitely.

Milk and butter-fat records of single purebred cows for series of years.

AYRSHIRE.

Owner.	State.	Name of cow.	Age.	Year.	Time in milk.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Yrs.		*Days.*	*Pounds.*	*P. ct.*	*Pounds.*
W. V. Probasco	New Jersey	Hornell Girl, 13993	4	1901-2	......	7,208	4.41	317.9
		.....do	5	1902-3	......	5,906	4.21	248.6
		Average	.....	....	......	6,557	4.32	283.3
		Lily Ayer, 13994	4	1901-2	......	8,477	4.23	358.6
		.....do	5	1902-3	......	6,910	4.16	287.5
		.....do	6	1903-4	......	6,062	4.09	247.9
		Average	.....	....	......	7,150	4.17	298.0
		Pearl Clyde, 13991	5	1901-2	......	8,286	4.19	347.2
		.....do	6	1902-3	......	7,824	4.10	320.8
		.....do	7	1903-4	......	6,939	4.15	288.0
		Average	.....			7,683	4.15	318.7
		Rosy Ayer, 13995	4	1901-2	......	6,771	4.39	297.2
		.....do	5	1902-3	......	7,098	4.21	298.8
		.....do	6	1903-4	......	7,949	4.40	349.8
		Average	.....			7,273	4.34	315.3
		Roma, 14197	3	1901-2	......	7,676	4.04	310.1
		.....do	4	1902-3	......	8,371	3.77	315.6
		.....do	5	1903-4	......	9,073	4.00	362.9
		Average	.....			8,373	3.94	329.5
		Katy Did, 15242	2	1901-2	......	6,679	4.65	310.6
		.....do	3	1902-3	......	7,299	4.29	313.1
		.....do	4	1903-4	......	5,971	4.37	260.9
		Average	.....	....	......	6,650	4.43	294.9
		Mysie of Barcheski, 14952.	7	1902-3	......	9,228	3.75	346.0
		.....do	8	1903-4	......	7,310	3.90	285.1
		Average	.....	....	......	8,269	3.82	315.6
		Floe, 16700	2	1902-3	......	7,986	4.26	340.2
		.....do	3	1903-4	......	6,111	4.77	291.5
		Average	.....	....	......	7,049	4.48	315.9
L. S. Drew	Vermont	Miss Ollie, 12039	6	1899	365	8,761	3.92	343.4
		.....do	7	1900	245	8,543	4.48	382.7
		.....do	8	1901	271	8,870	4.43	392.9
		.....do	9	1902	360	8,502	4.12	350.3
		.....do	10	1903	279	6,760	4.63	313.0
		.....do	11	1904	315	7,572	4.62	349.8
		Average	.....	....	......	8,168	4.35	355.4
		Pride of Burlington, 11932.	4	1896	289	5,984	4.12	246.5
		.....do	5	1897	304	7,171	3.42	245.3
		.....do	6	1898	311	6,801	4.05	275.4
		.....do	7	1899	303	6,395	4.32	276.3
		.....do	8	1900	262	5,500	4.05	222.8
		.....do	9	1901	288	6,580	4.21	277.0
		.....do	10	1902	362	8,623	3.60	310.4
		.....do	11	1903	315	7,580	4.14	313.8
		Average	.....	....	......	6,827	3.97	270.9
		Lady Watson, 12644	3	1896	288	5,700	4.11	234.2
		.....do	4	1897	232	4,632	4.11	190.4
		.....do	5	1898	314	7,514	4.01	301.3
		.....do	6	1899	294	7,273	3.59	261.1
		.....do	7	1900	279	5,858	3.80	222.6
		.....do	8	1901	273	6,115	3.90	238.5
		.....do	9	1902	285	7,600	3.90	296.4
		.....do	10	1903	277	7,019	3.81	267.4
		.....do	11	1904	317	7,010	3.90	273.4
		Average	.....	....	......	6,525	3.89	253.9

Milk and butter-fat records of single purebred cows for series of years—Continued.

AYRSHIRE—Continued.

Owner.	State.	Name of cow.	Age.	Year.	Time in milk.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Yrs.		*Days.*	*Pounds.*	*P. ct.*	*Pounds.*
L. S. Drew	Vermont	Aunt Abbie, 13220	2	1898	288	6,150	3.69	227.0
		do	3	1899	273	6,302	4.33	272.9
		do	4	1900	313	8,171	4.22	344.8
		do	5	1901	283	7,713	4.11	317.0
		do	6	1902	285	7,600	3.90	296.4
		do	7	1903	254	6,312	3.69	232.9
		do	8	1904	314	6,960	3.71	258.2
		Average				7,030	3.96	278.5
		Sheba 11931	2	1894	130	2,324	4.35	101.1
		do	3	1895	360	5,809	5.00	290.5
		do	4	1896	300	6,121	5.14	314.6
		do	5	1897	247	7,117	4.43	315.3
		do	6	1898	290	6,973	4.11	286.6
		do	7	1899	304	9,043	4.11	371.7
		do	8	1900	304	7,812	4.15	324.2
		do	9	1901	291	7,733	4.02	310.9
		do	10	1902	289	6,025	3.27	197.1
		do	11	1903	272	5,477	3.93	215.1
		do	12	1904	254	5,440	3.95	215.1
		Average				6,352	4.21	267.5
		Roanette 11476	6	1897	353	8,016	4.20	336.7
		do	7	1898	275	7,820	4.21	329.2
		do	8	1899	285	7,340	3.91	287.0
		do	9	1900	276	6,935	3.51	243.4
		do	10	1901	301	8,556	3.59	307.2
		Average				7,733	3.89	300.7
		Printsteps 8th 12643	3	1896	264	6,630	4.32	286.4
		do	4	1897	315	7,070	4.62	326.7
		do	6	1899	316	8,404	3.57	300.0
		do	7	1900	253	7,377	3.90	287.8
		do	8	1901	282	7,531	3.99	300.5
		do	9	1902	275	7,977	3.80	303.2
		do	10	1903	268	6,285	3.85	242.0
		Average				7,325	3.99	292.4
		Lady Sears 12641	6	1899	269	7,689	4.00	307.6
		do	7	1900	267	6,817	3.55	242.0
		do	8	1901	248	6,861	3.02	207.2
		do	9	1902	252	8,189	4.06	332.5
		Average				7,389	3.69	272.3
		Nancy B. 2d 11936	3	1895	327	6,625	3.74	247.8
		do	4	1896	271	6,215	4.21	261.6
		do	5	1897	305	8,012	4.41	353.3
		do	6	1898	279	7,610	3.91	297.5
		do	7	1899	308	9,096	3.79	354.7
		do	8	1900	340	7,993	3.44	275.0
		do	9	1901	312	8,738	3.32	290.1
		do	10	1902	286	8,371	3.49	292.2
		Average				7,833	3.79	296.5
		Sadie Tascott 11483	6	1897	306	7,493	3.48	260.8
		do	7	1898	324	7,633	4.14	316.0
		do	8	1899	312	7,924	3.81	301.9
		do	9	1900	338	8,089	3.77	305.0
		do	10	1901	248	7,006	3.28	229.8
		Average				7,629	3.71	282.7
		Little Nell 11477	4	1895	360	5,809	5.00	290.5
		do	5	1896	305	4,853	4.20	203.8
		do	6	1897	288	7,629	3.53	269.3
		do	7	1898	303	7,350	3.59	263.9
		do	8	1899	293	7,670	3.98	305.3
		do	9	1900	316	7,536	3.90	293.9
		do	10	1901	365	6,350	3.85	244.5
		Average				6,742	3.96	267.3

Milk and butter-fat records of single purebred cows for series of years—Continued.

AYRSHIRE—Continued.

Owner.	State.	Name of cow.	Age.	Year.	Time in milk.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Yrs.		*Days.*	*Pounds.*	*P. ct.*	*Pounds.*
L. S. Drew	Vermont	Hazel B. 10721	6	1895	300	6,033	4.21	254.0
		do	7	1896	304	7,396	3.99	295.1
		do	8	1897	277	6,623	3.90	258.3
		do	9	1898	321	7,714	4.00	308.6
		do	10	1899	290	8,210	4.10	336.6
		do	11	1900	307	6,776	4.01	271.7
		Average				7,125	4.03	287.4
		Nett 3d 12647	3	1896	244	5,930	4.10	243.1
		do	4	1897	333	7,748	4.18	323.9
		do	5	1898	306	7,668	3.96	303.7
		do	6	1899	308	9,538	3.88	370.1
		do	7	1900	296	8,538	4.27	364.6
		Average				7,484	4.29	321.1
Agricultural Experiment Station.	Vermont	Acme 5th 10342	5	1894-95	305	8,092	4.05	327.9
		do	6	1895-96	310	8,183	4.04	330.9
		do	7	1896-97	365	7,588	3.84	291.3
		do	8	1897-98	283	6,770	3.72	251.9
		do	9	1898-99	309	6,775	3.81	258.4
		do	10	1899 1900	311	7,733	3.71	287.0
		do	11	1900 1901	314	8,682	3.57	310.1
		do	12	1901-2	307	7,225	3.63	262.1
		do	13	1902-3	250	4,221	3.75	158.5
		Average				7,252	3.80	275.3
		Atlanta 10777	5	1894-95	316	6,639	3.85	255.4
		do	6	1895-96	310	7,312	3.69	269.7
		do	7	1896-97	327	7,155	3.76	269.3
		do	8	1897-98	275	6,206	3.75	233.0
		do	9	1898-99	310	9,740	3.78	368.0
		do	10	1899 1900	294	5,508	3.72	204.9
		do	11	1900 1901	365	7,494	3.96	296.6
		do	12	1901-2	269	4.859	3.81	185.0
		do	13	1902-3	327	5,519	3.68	203.0
		Average				6,715	3.78	253.9
		Nancy B. 9581	7	1894-95	345	7,831	3.90	305.5
		do	8	1895-96	293	6,068	4.06	246.6
		do	9	1896-97	356	8,782	4.06	356.8
		do	10	1897-98	268	7,662	3.80	291.0
		do	11	1898-99	333	8,344	4.00	333.8
		do	12	1899 1900	317	7,776	3.75	291.6
		do	13	1900 1901	339	9,161	3.74	342.3
		do	14	1901-2	288	5,692	3.71	211.1
		do	15	1902-3	317	5,610	3.81	213.8
		Average				7,436	3.87	288.1
C. M. Winslow	Vermont	Rose Deruth	6	1896		9,253	3.60	333.4
		do	10	1900		6,789	3.40	230.6
		do	11	1901		6,641	3.42	227.2
		do	12	1902		6,041	4.58	276.9
		do	13	1903		7,171	3.29	235.7
		Average				7,189	3.63	260.8
		Rose Deross	6	1896		7,643	3.88	296.6
		do	10	1900		7,330	4.38	321.4
		do	11	1901		6,219	4.07	252.9
		do	12	1902		5,399	3.95	213.4
		do	13	1903		5,729	3.90	223.7
		Average				6,464	4.05	261.6

Milk and butter-fat records of single purebred cows for series of years—Continued.

AYRSHIRE—Continued.

Owner.	State.	Name of cow.	Age.	Year.	Time in milk.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Yrs.		*Days.*	*Pounds.*	*P. ct.*	*Pounds.*
C. M. Winslow	Vermont	Rose Cleon	5	1896	......	8,049	3.77	303.4
		.....do	9	1900	......	7,824	4.00	312.8
		.....do	10	1901	......	5,556	3.90	216.9
		.....do	11	1902	......	6,594	3.74	246.9
		.....do	12	1903	......	5,191	3.52	182.6
		Average				6,643	3.80	252.5
		Acelista	6	1900	......	9,354	3.58	335.2
		.....do	7	1901	......	9,330	3.76	350.6
		.....do	8	1902	......	9,090	3.64	330.8
		.....do	9	1903	......	9,843	3.38	332.6
		.....do	10	1904	......	11,268	3.53	397.8
		Average				9,777	3.57	349.4
		Iola Lorne	6	1900	......	5,961	3.88	231.4
		.....do	7	1901	......	7,448	3.75	279.4
		.....do	8	1902	......	8,661	3.85	333.4
		.....do	9	1903	......	8,604	3.17	272.6
		.....do	10	1904	......	8,636	3.66	316.3
		Average				7,862	3.65	286.6
		Laura Kilbowie	3	1902	......	5,981	3.94	235.7
		.....do	4	1903	......	5,911	3.68	217.7
		.....do	5	1904	......	6,983	3.88	270.9
		Average				6,292	3.84	241.4
		Rose Clockston	3	1902	......	7,302	3.43	250.3
		.....do	4	1903	......	6,032	3.38	204.0
		.....do	5	1904	......	8,932	3.37	300.9
		Average				7,422	3.39	251.7
		Rose Brodick	3	1902	......	7,117	3.75	266.6
		.....do	4	1903	......	7,030	3.46	243.4
		.....do	5	1904	......	7,192	3.47	249.4
		Average				7,113	3.56	253.1

BROWN SWISS.

Owner.	State.	Name of cow.	Age.	Year.	Time in milk.	Yield of milk.	Fat in milk.	Yield of butter fat.
E. M. Barton	Illinois	Beinwyl	7	1896	......	9,813	4.24	415.51
		Do	8	1897	......	7,308	3.77	275.7
		Do	9	1898	......	8,462	4.16	351.8
		Average				8,525.6	4.08	347.67
		Flawyl	7	1896	......	9,067	4.10	371.3
		Do	8	1897	......	6,936	3.77	261.6
		Do	9	1898	......	9,207	3.72	342.7
		Average				8,403.3	3.87	325.2
		Bettschard's Laubi	9	1896	......	7,114	4.21	299.8
		Do	10	1897	......	6,605	3.94	260.2
		Do	11	1898	......	10,750	3.92	421.6
		Average				8,156.3	4.01	327.2
		Stiefmutterchen	5	1896	......	5,202	4.01	208.5
		Do	6	1897	......	6,749	3.95	266.4
		Do	7	1898	......	9,624	4.00	384.6
		Average				7,191.7	3.98	286.5
		Kaiserin	5	1896	......	6,530	4.20	274.2
		Do	6	1897	......	5,021	3.85	193.2
		Do	7	1898	......	9,994	3.88	387.6
		Average				7,181.7	3.97	285.0
		Julia B	6	1896	......	4,878	3.79	184.8
		Do	7	1897	......	6,131	3.47	212.6
		Do	8	1898	......	6,567	3.86	253.2
		Average				5,858.7	3.70	216.9

Milk and butter-fat records of single purebred cows for series of years—Continued.

GUERNSEYS.

Owner.	State.	Name of cow.	Age.	Year.	Time in milk.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Yrs.		*Days.*	*Pounds.*	*P. ct.*	*Pounds.*
E. W. Strawbridge.	New Jersey	Auricula 2d				8,194.0		
		do	4	1901-2		10,070.0		
		do	5	1902-3		12,077.0		
		do	6	1903-4		12,654.2	4.40	555.6
		do	7	1904-5		13,411.6	4.51	605.5
		Average				11,281.2		
New Jersey Experiment Station.	New Jersey	Elixir		1898		6,767.1	4.90	332.2
		do		1900		4,793.3	5.30	253.6
		do		1901		5,426.6	5.20	283.2
Storrs Experiment Station.	Connecticut	No. 13		1897				313.0
		do		1898				238.0
		do		1899				220.0
		do		1900				207.0
		do		1901				252.0
		Average						246.0
C. L. Hill	Wisconsin	Lady Bishop	5	1896		5,555.3	5.11	284.0
		do	6	1897		6,346.2	5.40	342.5
		do	7	1898		6,823.2	5.43	370.8
		do	8	1899		7,064.0	5.85	413.2
		do	9	1900		6,157.1	5.28	325.1
		Average				6,389.2	5.43	347.1
C. L. Hill	Wisconsin	Primrose Tricksey	6	1899 1900		8,276.9	5.46	451.8
		do	7	1900 1901		7,622.3	5.44	415.0
		do	8	1901-2		7,031.6	5.06	355.8
		do	9	1902-3		5,532.2	4.89	270.8
		Average				7,115.8	5.25	373.4
E. W. Strawbridge.	New Jersey	Dairy Maid of Elm Place 14197.	3	1901-2		9,045.8	5.23	473.5
		do	6	1904-5		12,176.9	5.49	668.4
		Sultana of Paxtang 8732.	10	1901-2		8,863.5	4.12	365.0
		do	11	1902-3		14,138.3	4.17	590.3
		Dolly Bloom	2	1902-3		8,841.6	5.13	453.9
		do	3	1903-4		12,764.8	4.88	623.9
		Imp. Antonina	7	1902-3		10,441.4	4.22	441.1
		do	8	1903-4		11,164.5	4.42	493.5
		Maggie Wylie	2	1902-3		7,755.5	5.33	413.4
		do	3	1903-4		8,625.0	5.47	472.1
		Coralette	3	1894-95		7,478.3	5.44	406.8
		do	4	1895-96		7,267.4	5.30	385.2
		do	5	1896-97		6,007.8	5.34	321.1
		do	6	1897-98		6,498.9	5.40	351.1
		Average				6,813.1	5.37	366.1
		Christine of Pinehurst.		1903-4		9,583.0		
		do		1904-5		11,576.0	4.38	507.0

HOLSTEINS.

Owner.	State.	Name of cow.	Age.	Year.	Time in milk.	Yield of milk.	Fat in milk.	Yield of butter fat.
Miss M. D. Eshleman (Mrs. Sherman).	California			1897				491.1
				1898				539.1
		Average						515.1
Agricultural Experiment Station.	Nebraska	Karen		1902		6,543.8	3.52	230.26
		do		1903		9,380.5	3.42	320.64
		do		1904		10,896.2	3.68	401.40
		Average				8,940.2	3.55	317.43

Milk and butter-fat records of single purebred cows for series of years—Continued.

HOLSTEINS—Continued.

Owner.	State.	Name of cow.	Age.	Year.	Time in milk.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Yrs.		*Days.*	*Pounds.*	*P. ct.*	*Pounds.*
Agricultural Experiment Station.	Nebraska	Bessie McKinley		1901		8,518.9	3.43	292.37
		do		1902		10,979.4	3.43	376.10
		do		1903		11,461.6	3.51	402.68
		Average				10,319.97	3.46	357.05
	Michigan	Belle Sarcastic		1894–95		21,027.8	3.00	631.30
		do		1895–96		13,256.1	3.00	397.71
		do		1896–97		21,723.9	3.14	682.45
		Average				18,669.3	3.06	570.49
New Jersey Experiment Station.	New Jersey	Hilda		1898		6,588.1	4.20	273.74
		do		1900		7,172.4	3.80	270.25
		do		1901		10,119.2	3.80	387.83
		do		1902		9,782.0	3.75	366.37
		do		1903		8,511.3	3.50	298.81
		Average				8,434.6	3.78	319.40
Agricultural Experiment Station.	Wisconsin	Chloe		1899		8,045.1	3.88	311.85
		do		1900		9,045.7	3.78	342.27
		do		1901		11,826.3	3.50	413.70
		Average				9,639.0	3.69	355.94
		Alma		1899		9,102.6	3.22	292.93
		do		1900		10,811.4	3.34	360.57
		do		1901		10,732.2	3.15	432.98
		do		1902		10,195.0	3.08	313.66
		Average				10,960.3	3.19	350.03
		McGeoch				10,272.6	3.79	389.26
		do				10,317.3	3.54	365.67
		Average				10,295.0	3.66	377.47

JERSEYS.

Agricultural Experiment Station.	Nebraska	Bee		1902		5,480.4	5.70	312.33
		do		1903		4,629.9	5.99	277.12
		do		1904		7,921.9	3.45	273.48
		Average				6,010.7	4.79	287.64
		Belle		1902		3,628.7	5.79	209.94
		do		1903		5,551.8	4.06	325.35
		do		1904		3,280.2	6.06	198.72
		Average				4,153.6	5.89	244.67
		Commotion		1902		5,630.8	4.67	263.00
		do		1903		2,378.12	5.11	121.58
		do		1904		4,679.1	4.80	224.48
		Average				4,229.34	4.80	203.02
		Diamond		1900		2,772.25	5.69	157.78
		do		1901		7,065.1	5.29	373.44
		do		1902		3,371.9	5.45	183.84
		do		1903		6,077.6	5.55	337.17
		Average				4,821.71	5.46	263.06
		Ruth 3d		1901		7,481.2	4.00	298.93
		do		1902		6,525.3	5.23	341.38
		do		1903		3,913.1	6.09	238.43
		do		1904		4,927.6	4.76	234.64
		Average				5,711.8	4.88	278.45

Milk and butter-fat records of single purebred cows for series of years—Continued.

JERSEYS—Continued.

Owner.	State.	Name of cow.	Age.	Year.	Time in milk.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Yrs.		*Days.*	*Pounds.*	*P. ct.*	*Pounds.*
Agricultural Experiment Station.	Nebraska	Snowflake		1901		3,380.8	5.31	179.61
		do		1902		2,325.9	5.44	126.46
		do		1903		3,047.15	5.69	173.37
		do		1904		4,561.3	5.72	261.04
		Average				3,328.79	5.56	185.12
		Whitelick		1901		4,048.23	5.71	231.13
		do		1902		4,418.6	5.57	246.14
		do		1903		4,726.4	5.90	279.05
		Average				4,397.74	5.73	252.11
E. W. Mosher	New York	Brenda Hugo	2	1896		5,634.0	4.44	250.0
		do	3	1897		5,795.0	5.90	341.84
		Average				5,714.5	5.18	295.92
		Nora M	2	1896		3,664.0	3.86	141.4
		do	3	1897		6,136.0	5.30	325.20
		Average				4,900.0	4.76	233.3
		Matilda	7	1896		7,392.0	4.82	356.4
		do	8	1897		6,351.0	5.40	342.95
		Average				6,871.5	5.81	399.35
		Tabberet	8	1896		6,877.0	4.29	295.0
		do	9	1897		6,163.0	4.8	295.77
		Average				6,520.0	4.53	295.38
		Everetta	8	1896		4,992.0	5.61	280.1
		do	9	1897		4,802.0	5.60	268.9
		Average				4,897.0	5.61	274.5
		Emma's Pearl	10	1896		9,035.0	4.47	404.1
		do	11	1897		9,679.0	4.40	426.28
		Average				9,357.0	4.44	415.19
Minnesota Agricultural Experiment Station.	Minnesota	Champion's Sweet Brier 3d.		1892		7,057.0	5.1	359.9
		do		1893		7,094.0	5.0	354.7
		do		1894		4,744.0	4.9	232.5
		do		1895		8,426.0	4.98	419.6
		do		1896		6,364.0	5.0	318.2
		do		1897		7,594.0	5.35	406.2
		Average				6,879.8	5.07	348.5
Agricultural Experiment Station.	Vermont	Max Belle 108966	3	1895–96	285	3,596.0	6.25	224.7
		do	4	1896–97	365	3,345.0	6.72	224.8
		do	5	1897–98	354	3,213.0	6.14	197.3
		do	6	1898–99	341	4,514.0	6.05	273.3
		do	7	1899 1900	330	4,659.0	6.14	286.0
		do	8	1900 1901	334	4,956.0	5.71	282.8
		do	9	1901–2	330	4,666.0	5.83	271.8
		do	10	1902–3	357	5,548.0	5.50	305.3
		Average				4,312.0	5.99	258.3
		Minta Bella 85578	4	1895–96	285	4,726.0	6.25	295.3
		do	5	1896–97	365	5,751.0	6.70	385.5
		do	6	1897–98	325	6,036.0	5.54	334.2
		do	7	1898–99	363	4,953.0	6.60	326.7
		do	8	1899 1900	344	6,860.0	5.72	392.2
		do	9	1900 1901	309	6,162.0	5.62	346.4

Milk and butter-fat records of single purebred cows for series of years—Continued.

JERSEYS—Continued.

Owner.	State.	Name of cow.	Age.	Year.	Time in milk.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Yrs.		*Days.*	*Pounds.*	*P. ct.*	*Pounds.*
Agricultural Experiment Station.	Vermont	Minta Bella 85578	10	1901-2	314	5,468.0	5.58	304.9
		do	11	1902-3	321	6,200.0	5.66	351.0
		Average				5,769.5	5.93	342.0
		Lady Perusia 123228	5	1898-99	365	5,686.0	6.22	353.7
		do	6	1899 1900	276	5,559.0	5.81	322.8
		do	7	1900 1901	330	4,954.0	6.01	297.7
		do	8	1901-2	323	3,346.0	6.76	226.2
		do	9	1902-3	340	6,188.0	5.78	357.5
		Average				5,146.6	6.05	311.6
		Beautina of Hillcrest 85928.	8	1899 1900	365	7,089.0	5.32	377.3
		do	9	1900 1901	321	6,513.0	4.94	321.5
		do	10	1901-2	297	5,838.0	4.82	281.3
		do	11	1902-3	323	5,236.0	4.84	253.3
		Average				6,169.0	5.00	308.4
Geo. H. Sweet	New York	Pride's Olga 4th 96870	4	1897-98	284	9,509.6		
		do	5	1898-99	290	10,698.7		
		do	6	1899 1900	330	11,888.3		
		do	7	1900 1901	223	6,677.9		
		do	8	1901-2	248	9,791.0		
		do	9	1902-3		10,185.3		
		do	10	1903-4		9,759.1		
		do	11	1904-5	223	8,095.7		
		Average				9,575.7		
Agricultural Experiment Station.	Utah	No. 3	6	1894-95	349	6,801.0	4.61	313.4
		do	7	1895-96	241	5,122.0	4.53	232.2
		do	8	1896-97	122	3,226.0	4.53	146.3
		Average				5,049.7	4.57	230.6

SHORTHORNS.

J. K. Innes	New York	Nancy Lee		1902-3	277	5,815.8		
		do		1903-4	330	6,753.9		
		Average				6,284.85		
		Mayflower		1903	300	7,270.6		
		do		1904	315	6,475.6		
		Average				6,873.1		
		Laura		1902-3	285	9,052.8		
		do		1903-4	240	8,846.5		
		Average				8,949.65		
		Kitty Clover		1903-4	330	7,179.0		
		do		1904	315	8,237.5		
		Average				7,708.25		
		Betsy 8th		1903	300	5,073.4		
		do		1904	337	6,557.7		
		Average				5,815.55		
		Henrietta Clay		1903	285	7,638.2		
		do		1904	290	8,665.0		
		Average				8,151.6		

Milk and butter-fat records of single purebred cows for series of years—Continued.

SHORTHORNS—Continued.

Owner.	State.	Name of cow.	Age.	Year.	Time in milk.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Yrs.		*Days.*	*Pounds.*	*P. ct.*	*Pounds.*
J. K. Innes	New York	Margaretta Clay		1902-3	313	8,380.2		
		do		1903-4	330	9,845.1		
		Average				9,112.65		
		Jennie Lee		1902-3	336	8,153.9		
		do		1903-4	304	8,758.6		
		do		1904	115	4,610.3		
		Average				7,174.27		
		Kittie Clay 15th		1903	285	7,396.2		
		do		1903-4	277	7,805.7		
		Average				7,600.95		
		Kitty Sweet		1902-3	228	5,872.9		
		do		1903-4	310	8,386.4		
		Average				7,129.65		
		Belle of Glenside		1902-3	339	8,930.9		
		do		1903-4	304	6,451.9		
		Average				7,691.4		
		Red Bird		1903	323	8,580.4		
		do		1904	285	7,830.9		
		Average				8,205.65		
		Ruth		1902-3	290	6,794.6		
		do		1903-4	305	7,383.6		
		Average				7,089.1		
		Kitty Clover 3d		1903-4	290	7,481.4		
		do		1904	285	6,913.6		
		Average				7,197.5		
		New Years Clay		1903-4	294	6,259.0		
		do		1904	290	5,181.5		
		Average				5,720.25		
		Lady Lee		1902-3	288	6,777.6		
		do		1903-4	250	7,648.6		
		do		1904	89	3,696.4		
		Average				6,040.87		
		Christmas Jewell		1903	294	6,777.0		
		do		1904	277	4,511.6		
		Average				5,644.3		
		Mayflower 3d		1902-3	253	4,436.9		
		do		1903-4	240	4,375.8		
		Average				4,406.35		
		Kinsella 3d	2	1902-3	312	7,094.6		
		do		1903-4	357	8,214.8		
		Average				7,654.7		
		Lady Clare 4th		1903	260	6,526.7		
		do		1904	278	6,600.9		
		Average				6,563.8		
		Rose of Glenside	2	1903	276	5,987.7		
		do		1904	290	5,850.8		
		Average				5,919.25		

Milk and butter-fat records of single purebred cows for series of years—Continued.

SHORTHORNS—Continued.

Owner.	State.	Name of cow.	Age.	Year.	Time in milk.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Yrs.		*Days.*	*Pounds.*	*P. ct.*	*Pounds.*
J. K. Innes	New York	Bessie Lee		1903	292	4,884.7		
		do		1903-4	301	5,428.7		
		Average				5,156.7		
		Connishead Foggathorpe.		1902-3	320	4,993.1		
		do		1903-4	326	6,953.5		
		Average				5,973.3		
		Connishead Waterloo		1902-3	337	7,194.4		
		do		1904	255	7,051.9		
		Average				7,123.15		
		Betsey	2	1902-3	309	4,554.5		
		do		1903-4	327	5,436.7		
		Average				4,995.6		
Agricultural Experiment Station	Utah	No. 1	4	1894-5	334	5,159	3.04	156.7
		do	5	1895-6	280	4,501	3.06	137.7
		do	6	1896-7	322	7,228	3.35	242.3
		do	7	1897-8	291	6,309	3.14	198
		do	8	1898-9	214	5,870	3.35	196.7
		Average				5,813.4	3.20	186.28

SOME REMARKABLE LONG-PERIOD RECORDS.

A purebred Ayrshire cow, Crocus No. 3400, owned in Portsmouth, N. H., made an average milk record for twelve years of 7,082 pounds, and for fifteen years a little over 6,000 pounds. She lived until seventeen years of age, and her total milk product amounted to over 45 tons, or 5,000 Boston cans of 8½ quarts each.

Another purebred Ayrshire cow, Annie Bert, owned at Hickory Hill Farm, New Hampshire, gave in twelve years 90,389 pounds (over 45 tons) of milk and 3,906 pounds of butter.

A proprietor of a dairy farm in New York makes the following statement regarding the dairy performance of a Jersey cow in his herd, Pride's Olga 4th:

Number of lactation period.	Length of lactation period.		Milk produced.	
	Mos.	*days.*	*Lbs.*	*ozs.*
First	9	10	9,509	10
Second	9	16	10,698	10
Third	10	26	11,888	5
Fourth	7	10	6,677	14
Fifth	8	5	9,791	0
Sixth			10,185	4
Seventh			9,759	2
Eighth	7	28	8,095	12

When 2 years old she produced in seven days 242 pounds 4 ounces milk that made 15 pounds 2 ounces of butter.

When 3 years and 11 months old she produced in seven days 369 pounds milk and 23 pounds 3 ounces butter.

When 6 years old she produced in seven days 420 pounds 9 ounces milk and 27 pounds ½ ounce butter.

Her best yield of milk for one day was 65 pounds 4 ounces.

Her best yield for seven days was 447 pounds 2 ounces.

Her best yield for thirty-one days was 1,941 pounds 14 ounces.

The total number of days she has milked since she dropped her first calf has been 2,257, and the total amount of milk given in that time has been 76,605.64 pounds, which means an average of 33.94 pounds of milk per day.

A New Jersey dairyman gives the following statement regarding the dairy performance of a purebred Holstein cow owned by him:

Quite a remarkable cow in our herd is Susie De Kol, a registered Holstein-Friesian cow, and possibly one of the strongest bred in the De Kol lines of any cow living at the present time. She has given birth to ten calves—seven heifers and three bulls—all of which are living. She came to Bloomingdale after her second calf, and has been in milk here seven years, and during that time she has given 81,284 pounds of milk, or 40 tons 1,284 pounds, equal to about 36,475 quarts, which at an average price of 3 cents per quart would give $1,093.25. She has been officially tested three times. In 1899 she gave 19.84 pounds butter in seven days; in 1900 she gave 24.31 pounds butter; in 1901 she gave 474.48 pounds milk and 25.3 pounds butter, her milk averaging 4.26 per cent fat during the test. She has five daughters that have advanced registry records and several granddaughters.

The University of Missouri reports that a registered Jersey cow, Hope of Ramapo, at that institution, brought $1,341.72 into the school treasury during seventeen years through the sale of her butter, milk, and calves. Her record for this period is 78,585 pounds of milk, 4,147 pounds of butter, and 15 calves.

Such a record as the above shows the possibilities of production from a good cow. Many farmers who keep a cow a year to raise a $15 or $20 calf think they have done well, but such profits do not compare with those of the dairyman.

The purebred Jersey cow Agnes of St. Francis, owned by a New York dairyman, has the following record:

Year.	Yield of milk.	Butter fat in milk.	Yield of butter fat.	Yield of butter.
	Pounds.	*Per cent.*	*Pounds.*	*Pounds.*
1902	9,420	5.2	489.84	571.48
1903	9,512	5.2	494.62	577.06
October 3 to 9, inclusive	415			27.06

She has been the champion cow at the New York State Fair twice and at the Interstate Fair, Trenton, N. J., twice.

MILK AND BUTTER-FAT RECORDS OF PUREBRED COWS FOR SHORT PERIODS.

The records of purebred cows for short periods presented in the accompanying table will serve to show the possibilities of production when animals are carefully bred and fed and managed with the view of securing maximum yields. It has not been the aim to make an exhaustive compilation even of official records, as space in this bulletin would not permit. The writer has endeavored, however, to present a sufficient number of the best records of the different breeds for short periods to show their productive capacity and the extent to which the dairy cow has been developed.

RECORDS OF PUREBRED AYRSHIRES FOR SHORT PERIODS.

The following table contains records for a large number of single purebred Ayrshire cows for short periods:

Milk and butter-fat records of purebred Ayrshire cows for short periods.

Owner.	State.	Name of cow.	Age.	Time.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Yrs.	*Days.*	*Pounds.*	*Per ct.*	*Pounds.*
E. J. Fletcher	New Hampshire	....	.....	1	65.0	....	....
		....	6	1	47.61	5.8	2.76
		....	6	1	42.68	4.8	2.05
		....	8	1	42.8	4.52	1.94
		....	7	1	37.9	4.5	1.71
		....	10	1	42.3	4.23	1.65
Geo. C. Clark	New Hampshire	Durtharlynne	.....	1	60.0	....	....
L. S. Drew	Vermont	Dolly Athol	.....	1	31.0	....	2.07
		Miss Ollie	.....	1	54.96	4.70	2.58
L. D. Stowell	New York	....	.....	1	61.5	....	....
W. B. Probasco	New Jersey	Hornell Girl	.....	1	57.0	....	....
W. P. Schauck	New York	....	.....	1	60.0	....	....
J. D. French	Massachusetts	Acorn	.....	1	48.6	....	....
C. M. Winslow	Vermont	Lovely	.....	1	36.0	....	1.44
		Clio Rose	.....	1	33.5	....	1.41
		....	8	1	39.36	5.2	2.05
C. H. Hayes & Sons.	New Hampshire	Queen Mary	.....	1	70.0	....	....
		Lady Marcia	.....	1	67.5	....	....
		Mary 2d	.....	1	70.0	....	....
		Dutchess of Smithfield	.....	7	....	....	16.8
W. P. Schauck	New York	....	.....	7	420.0	....	....
G. H. Yeaton	New Hampshire	Ouija 11882[a]	8	7	377.7	3.50	13.22
		Yuba Lass 12353[a]	7	7	327.0	4.10	13.41
		Lady Fox 9669[a]	13	7	334.3	4.09	13.67
		Rayn 12368[a]	6	7	329.5	4.19	13.81
		Annie Bert 9670[a]	12	7	356.0	3.93	13.99
		Miss Olga 13984[a]	4	7	333.5	4.30	14.34
		Lukolela 12357[a]	6	7	428.5	3.80	16.28
		Clem 11135[a]	.....	7	238.7	5.06	12.08
		Xoa 11469[a]	8	7	314.9	3.75	11.81
		Iona S 12350[a]	7	7	247.8	4.50	11.15
		Olah 11471[a]	.....	7	310.5	3.48	10.81
		Annie Bert 9670[a]	.....	7	333.2	4.20	13.99
C. H. Hayes & Sons.	New Hampshire	Lady Marcia 11111[a]	9	7	437.0 381.3	.... 3.30	.... 12.58
		Hersa 11204[a]	8	7	295.5	3.70	10.93
		Queen Mary[a]	.....	7	403.5	....	....
		Cromona 11436[a]	8	7	272.8	4.00	10.91
		Cherry Blossom 12389[a]	5	7	290.5	3.44	9.99
		Lady Briarwood 11434[a]	8	7	276.8	3.60	9.96
		Cheolynne 12325[a]	7	7	265.0	3.60	9.54
		Dartwood 13324[a]	7	7	245.0	3.80	9.31
L. S. Drew	Vermont	Nett 3d 12647[a]	6	7	312.5	3.90	12.19
		Miss Edna 13218[a]	4	7	272.5	4.01	10.93
		Sadie Tascott 11483[a]	8	7	292.5	3.68	10.76
		Miss Ollie 12039[a]	7	7	364.3	4.20	15.30
		Printsteps 8th 12643[a]	7	7	370.9	3.80	14.09

[a] Official.

Milk and butter-fat records of purebred Ayrshire cows for short periods—Continued.

Owner.	State.	Name of cow.	Age.	Time.	Yield of milk.	Fat in milk.	Yield of butter-fat.
			Yrs.	*Days.*	*Pounds.*	*Per ct.*	*Pounds.*
L. S. Drew	Vermont	Aunt Abbie 13220[a]	4	7	278.6	4.06	11.31
		Lady Sears 12641[a]	7	7	304.3	3.51	10.68
C. M. Winslow & Son.	Vermont	Rose Sultana 12072[a]	6	7	295.5	3.73	11.02
		Rose Allie 11154[a]	7	7	250.8	4.33	10.86
		Rose Cleon 11143[a]	8	7	210.3	4.19	8.81
		Rose Deruth 10346[a]	9	7	229.5	3.75	8.61
		Thoretta 10258[a]	12	7	223.8	3.60	8.06
		Rose Clenna 11153[a]	7	7	298.0	3.53	10.52
		Acelista 12094[a]	5	7	276.0	3.33	9.19
		Hessler 11765[a]	8	7	312.5	2.93	9.16
		Iola Lorne 12773[a]	5	7	228.5	3.78	8.64
L. C. Spalding & Son.	Vermont	Troy Girl 12559[a]	7	7	276.0	3.23	8.91
		Lillian Drummond 9403.[a]	15	7	275.0	3.27	8.99
		Brownie Douglas 11825.[a]	9	7	263.8	3.77	9.94
		Rose Drummond 10173.[a]	11	7	297.8	3.37	10.04
		Nonpareil Myra 14707[a]	5	7	336.0	3.36	12.29
O. Smith	New York	Mamie 5th 15880[a]	4	7	233.3	3.82	8.91
		Myrtle Beppo 15396[a]	7	7	242.8	3.65	8.86
		Miss Mary 2d 11326[a]	12	7	229.6	3.64	8.36
		Mabel D 15874[a]	5	7	211.4	3.43	7.25
		Janett 15878[a]	5	7	205.8	3.42	7.04
E. F. Pember	Maine	Hazel Alaska		30	1,470.0		
		Dorothy		30	1,488.0		
W. V. Probasco	New Jersey	Hornell Girl		30	1,456.0		
C. H. Hayes & Son	New Hampshire	Queen Mary		30	1,669.5		
		Lady Marcia		30	1,602.0		
		Mary 2d		30	1,500.0		
		Cads Beauty		30			83.1
L. S. Drew	Vermont	Miss Ollie		30			77.1
E. J. Fletcher	New Hampshire	Banjo Music		30			61.7
C. M. Winslow	Vermont	Rose Clenna		30			54.9

[a] Official.

RECORDS OF PUREBRED BROWN SWISS COWS FOR SHORT PERIODS.

A few records of purebred Brown Swiss cows for short periods are shown in the following table:

Owner.	State.	Name of cow.	Age.	Time.	Yield of milk.	Fat in milk.	Yield of butter-fat.
			Yrs.	*Days.*	*Pounds.*	*Per ct.*	*Pounds.*
——		Brienzi 168		3	245.1	3.81	9.33
Hull Bros	Ohio			30	1,500.0		
E. M. Barton	Illinois	Bettschard's Laubi	12	1	56.8	4.27	2.43
		do	12	7	361.0	3.92	14.15
		do	12	30	1,452.0	4.00	58.08
		Lucy B		30	1,140.0	4.07	46.40
		Geraldine		30	1,155.0	5.26	60.75
		Stiefmutterchen		30	1,056.0	4.77	50.37
		Gwenten		30	907.0	4.58	41.54
		Serva		30	863.0	3.89	33.57
		Sophy		30	899.0	4.81	43.24
		Nicola		30	1,053.0	4.79	50.44

RECORDS OF PUREBRED DEVON COWS FOR SHORT PERIODS.

The records of seven purebred Devon cows are shown in the following table:

Owner.	State.	Name of cow.	Age.	Time.	Yield of milk.	Fat in milk.	Yield of butter-fat.
			Yrs.	*Days.*	*Pounds.*	*Per ct.*	*Pounds.*
B. S. Jones	Pennsylvania	Songstress 2d	2	1	37.5		
		.....do	6	1	51.0	4.00	2.04
		Songstress 5th	2	1	38.0		
		.....do		30	1,072.7	4.20	45.05
———	Massachusetts	Lady Alice		7	347.0	4.00	13.88
		.....do		31	1,470.5	4.00	58.80
Geo. Baker & Son	Wisconsin	Wisconsin Belle		30	1,440.0		

RECORDS OF PUREBRED GUERNSEY COWS FOR SHORT PERIODS.

The following tables contain records of purebred Guernsey cows for periods less than one week:

Lucille 115, 47 pounds of milk, 3 pounds 1½ ounces of butter in one day.

Lily of Alexandre 1059, 28 pounds of milk, testing 7.2 per cent of butter fat two months before calving.

Bonnieline 2083, 2 pounds 2 ounces of butter in one day.

Nerrissa of Geneva 842, 2 pounds 5 ounces of butter in one day.

Susanna 1817, 2 pounds 2 ounces of butter in one day.

Champion Beauty 1575, 2 pounds 4 ounces of butter in one day.

Tricksey 1760, 2 pounds 7¾ ounces of butter in one day.

Damsel, 39 pounds of milk, 3 pounds of butter in one day.

Amber 2d 96, 2½ pounds of butter, 45 pounds of milk in one day.

Poncha 2105, 4 pounds 5 ounces of butter in two days, when 2 years old.

Madeline 3d 3685, 5 pounds 4 ounces of butter, 61½ pounds of milk in two days.

La Genista 2986, 110 pounds of milk, 6 pounds 8 ounces of butter in three days.

Maternalette 2127, 8 pounds 8 ounces of butter in three days.

Princessa 5th 2554, 98 pounds of milk, 6 pounds 15 ounces of butter in three days.

Valencia 664, 90 pounds of milk, 7 pounds of butter in three days.

Champion Snowflake 3080, 5 pounds of fat in three days.

Tricksey 2d 2633, 8 pounds of butter in three and a half days.

Lily of Prospect 615, 8 pounds 10 ounces of butter in three and a half days, when 12 years old.

Darling of Braintree 655, 7 pounds 9 ounces of butter in three and a half days.

Yeksa 2426, 112 pounds of milk, 10 pounds of butter in four days.

Margaret B 2038, 8 pounds 7 ounces of butter in four days, when 2 years old.

Official seven-day records of purebred Guernsey cows.

Name and number.	Age.	Milk.	Fat.
	Years.	*Pounds.*	*Pounds.*
Queen Deette 9794 Adv. R. 11	4¼	413.1	16.22
Imp Princess Rhea 15479 Adv. R. 59	7¼	349.1	16.06
Mentor Maid 13261 Adv. R. 12	4	299.9	16.02
Cecchina 11694 Adv. R. 33	4	300.4	13.52
Beauty of Belle Vernon 13260 Adv. R. 13	2¼	279.2	11.80

Seven-day butter records of purebred Guernsey cows.

Name and number.	Owner.	Yield of butter.	
		Lbs.	*Oz.*
Royalette 3299	F. W. Tratt	28	12
Nubia's Vesta 5986	Geo. C. Hill & Son	25	8
Gully 5th 1590	S. L. Hoxie	24	2
Lily Ella 7240	Jas. H. Beirne	23	11¾
Imp Bessie de la Pailloterie 1409	E. F. Bowditch	23	8
Fantine 2d 3730	Chas. Solveson	23	7½
Fernwood Lily 1468	L. W. Ledyard	22	11⅛
Select 2205	Francis Shaw	22	8
Kathleen 38	C. M. Beach	22	4
Lilyita 7241	Jas. H. Beirne	22	1½
Forest Queen 2019	Corydon Peck	22	0
Imp Blanche Chameau 676	A. Warner	21	14
Rutila's Daughter 6670	H. McK. Twombly	21	9
Duchess of Brittany 1613	S. L. Hoxie	21	4
Chellie 2d 7130	Dr. E. P. Turner	21	4
Lucille 115	E. F. Bowditch	21	0
Madame Tricksey 6519	Geo. C. Hill & Son	20	10
Garnet of Lehigh 2208	A. F. Fuller	20	0
Minnehaha 1554	Corydon Peck	19	6
Elegante 592	L. W. Ledyard	19	4
Beautella 3293	Jas. H. Beirne	19	4
Polly of Fernwood 1565	L. W. Ledyard	19	1½
Lady May 531	.....do	19	0
Queen Deette 9794	A. J. Philips	18	14¾
Fernleaf 636	L. W. Ledyard	18	13
Bretonne 3660	Levi P. Morton	18	12⅛
Vestal of Larchmont 1507	Francis Shaw	18	12½
Gypsy of Racine 9639	Geo. C. Hill & Son	18	11.7
Mentor Maid 13261	Belle Vernon Farms Dairy Co.	18	11
Politesse 1329	Est. E. F. Bowditch	18	11
Mernalette 5723	N. K. Fairbank	18	10
Count Topsy 11680	Jas. H. Beirne	18	9
Stella 4th 1598	S. L. Hoxie	18	4
Rose of Maple Glen 2458	Corydon Peck	18	2
Miss Bobolink 2157	Est. E. F. Bowditch	18	0
Imp Jessie of Lester Manor 740	Francis Shaw	18	0
Coraline 1790	I. J. Clapp	18	0
Coral 2d 98	Jas. M. Codman	18	0
Silky 470	Jas. Logan Fisher	18	0
Belle Forest 2d 68	Jas. P. Swain, jr	18	0
Valentine de Gron 7641	L. P. Morton	18	0
La Reine	(Island cow)	18	0
Countess Bishop 7869	Geo. C. Hill & Son	17	12
Mary Marshall 5604	Ezra Michener	17	12
White Rose 44	F. A. & S. W. Comly	17	11¼
Rosebud 4th of Les Vauxbelets 1037	I. J. Clapp	17	1
Honoria 4th 5989	H. McK. Twombly	17	10
Yeksa 2426	I. J. Clapp	17	8
Primrose Tricksey 7236	Geo. C. Hill & Son	17	6¼
Suke of Rosendale 6526	.....do	17	6
Virginia of Madison 6000	H. McK. Twombly	17	4⅛
Miss Gypsy 9641	John W. Scribner	17	4
Glenwood Girl 4th 9110	E. T. Gill	17	4
Lily of Prospect 615	I. J. Clapp	17	4
Forest Queen 7057	Dr. E. P. Turner	17	3
Imp Dawn 711	Francis Shaw	17	2⅛
Coralette 5722	Geo. C. Hill & Son	17	2
Dolly's Ada 9289	G. B. Tallman	17	1
Treefoil 522	Chas. R. King	17	0
Merry Rose 3766	Ezra Michener	17	0
Fantasia S. 7921	Chas. Solveson	17	0

RECORDS OF PUREBRED HOLSTEIN COWS FOR SHORT PERIODS.

One-day milk and butter-fat records of purebred Holstein cows.

Owner.	State.	Name of cow.	Age.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Yrs.	*Pounds.*	*Per ct.*	*Pounds.*
Gillett & Son	Wisconsin	Johanna Colantha	4	71.4	....	....
		Colantha 4th Johanna	4	82.1	....	....
D. B. Whipple	New York	Pietertje 2d 3273 [a]	9¾	112.4	....	....
T. G. Yeomans & Sons	do	Princess of Wayne [a]	11⅝	113.1	....	....
C. A. Wheeler	do	Gelsche 173 [a]	7	100.0	....	....
Henry Stevens & Sons	do	Inca 4th	4	85.0	....	....
		Inca 2d	7	82.0	....	....
		Inca 6th	5	89.7	....	....
		Helena Burke	7	98.9	....	....
A. W. Brown	do	Aaggie Grace 2d Pietertje [b]	.....	100.0	....	....
Agricultural College	Michigan	Rosa Bonheur 5th 11227 [b]	.....	106.0	2.89	3.06
		Belle Sarcastic 23039 [b]	.....	81.9	2.98	2.44
		Houwtje D 12005	.....	93.0	3.18	2.96
Karlen & Co	Wisconsin	Tirania	.....	91.0	....	....
		Mechthilde	.....	112.4	....	....
H. D. Roe	New Jersey	Aaggie Cornucopia Pauline 48426	2½	86.00	....	....
		Lilith Pauline De Kol 43434	3	88.24	....	....
		Jetzke Roe's Aggie's Artis 40718	3	72.00	....	....
		Jarie Pauline De Kol 2d	3	66.80	....	....
		Aaggie Ideal De Kol 46517	3	61.00	....	....
		Maud Aaggie De Kol 45426	3	62.20	....	....
		Princess Youintje Pauline Paul 48422.	3	62.64	....	....
		Roxie Wayne's De Kol 45125	3	68.00	....	....
		Jetzke Artis De Kol 46572	3	80.00	....	....
		Roxie Pauline De Kol 43426	3	60.10	....	....
		Roxie Wayne's Pauline 48427	3	72.00	....	....
		Homestead Girl De Kol 48423	3	65.75	....	....
		May Hartog Pauline De Kol 45124	3	65.45	....	....
		do	3½	78.00	....	....
		Lilith Pauline De Kol 43434	4	100.85	....	....
		Zauca De Kol 38930	4	66.20	....	....
		Roxie Wayne 25207	4	60.50	....	....
		Brookside Lilith De Kol 44928	4	67.00	....	....
		Princess Youintje	4	61.00	....	....
		Aaggie Ideal's Black Beauty	4	64.12	....	....
		Doninda Wayne 2d Pauline De Kol 43429.	4½	68.60	....	....
		Jetzke Roe's Aaggie's Artis 40718	5	90.00	....	....
		Jarie Pauline De Kol 38928	5	65.00	....	....
		Mulvie Pauline De Kol 43433	5	67.95	....	....
		Dorothy Ondine Wayne	5	62.31	....	....
		Aaggie Cornucopia	6	61.00	....	....
		Shadeland Zora 2d 36219	6	79.15	....	....
		Dorothy Ondine Wayne 3d 38931	6	86.95	....	....
		Zauca De Kol 38930	6	75.00	....	....
		Beryl Wayne 32496	7	92.00	....	....
		Aaggie Cornucopia 3d 34026	7	74.80	....	....
		Brookside Lilith	7	69.00	....	....
		Beryl Wayne 32496	8	92.00	....	....
		Roxie Wayne 25207	9	87.70	....	....

[a] Record attested by owner.

[b] Record official.

Seven days' official milk and butter-fat records of Holstein cows (advanced registry).

[Including only butter fat records which are equivalent to 20 pounds of butter or over.]

Owner.	State.	Name of cow.	Age of cow.			Yield of milk.	Fat in milk.	Yield of butter fat.
			Y.	*m.*	*d.*	*Pounds.*	*Per ct.*	*Pounds.*
H. D. Roe	New Jersey	Aaggie Cornucopia Pauline.	4	11	4	659.2	4.17	27.459
McAdam & Von Heyne.	New York	Sadie Vale Concordia	10	2	24	694.3	3.53	24.508
T. S. Tompkins	Minnesota	Mercedes Julip's Pietertje.	6	0	22	584.0	4.02	23.487
H. D. Roe	New Jersey	May Hartog Pauline De Kol.	4	11	8	633.2	3.70	23.417
Do	do	Lilith Pauline De Kol	4	3	12	653.4	3.46	22.589
Averill & Gregory	New York	Segis Inka	9	5	16	578.2	3.88	22.430
H. D. Roe	New Jersey	Beryl Wayne	8	10	12	608.1	3.67	22.298
Do	do	Aaggie Cornucopia Pauline.	3	11	9	599.2	3.66	21.953
Geo. T. McNeil	New York	Leila Pietertje	7	8	11	577.4	3.78	21.851
H. Bollert	Ontario, Canada	Tidy Abbekerk	8	8	16	551.0	3.96	21.832
H. A. Moyer	New York	Alcartra Polkadot	5	1	24	580.2	3.74	21.723
James Rettie	Ontario, Canada	Alta Posch	2	11	28	586.2	3.70	21.661
Charles D. Pierce	California	Romeo Aaggie's Acme	7	0	13	431.9	4.95	21.360
H. Stevens & Sons	New York	Netherland Hengerveld.	7	11	10	544.9	3.91	21.333
Do	do	De Kol 2d	10	11	3	536.8	3.96	21.261
H. D. Roe	New Jersey	Lilith Pauline De Kol	5	2	18	692.2	3.05	21.146
James Rettie	Ontario, Canada	Mercena 2d	4	3	14	554.2	3.80	21.078
T. S. Tompkins	Minnesota	Mercedes Julip's Pietertje.	6	0	22	540.8	3.89	21.051
W. W. Brown	Ontario, Canada	Jessie Veeman A	8	7	3	584.9	3.59	20.999
H. A. Mower	New York	Faforit Tritomia	7	11	26	550.2	3.79	20.845
E. H. Knapp	do	Katy Spofford Corona	3	1	6	590.7	3.52	20.822
H. D. Roe	New Jersey	Lilith Pauline De Kol	5	2	18	613.5	3.39	20.770
Do	do	Jarie Pauline De Kol	7	4	16	522.2	3.97	20.713
H. Stevens & Sons	New York	Belle Korndyke	10	9	13	509.8	4.04	20.615
W. A. Matteson	do	Jessie Maida	4	8	1	594.1	3.47	20.611
T. G. Yeomans & Sons	do	Mutual Friend 2d	7	0	17	585.1	3.52	20.608
W. C. Hunt	do	Rowena Maid 2d's B	4	11	29	547.6	3.74	20.495
Geo. T. McNeil	do	Tulip Pietertje Inka De Kol.	4	11	22	484.3	4.22	20.441
W. C. Hunt	do	Winana Pietertje De Kol	4	9	29	576.5	3.54	20.436
World's Fair Holstein-Friesian Association.	Missouri	Heeringa Pauline 2d	7	0	25	576.6	3.54	20.422
H. Stevens & Sons	New York	Helena Burke	7	3	10	654.1	3.11	20.364
S. B. Jones & Sons	Wisconsin	Grace Fayne 2d	7	2	25	569.0	3.57	20.335
Michigan Agricultural College.	Michigan	Rosa Bonheur 5th	5	10	6	682.0	3.33	20.270
T. G. Yeomans & Sons	New York	Mutual Friend 2d	9	1	3	589.3	3.43	20.242
A. A. Cortelyou	New Jersey	Susie De Kol	8	10	7	474.5	4.27	20.245
E. E. Randall	Wisconsin	Alcartra Polkadot	4	0	24	494.2	4.09	20.222
McAdam & Von Heyne.	New York	Inka Clothilde	4	8	8	526.6	3.84	20.213
World's Fair Holstein-Friesian Association.	Missouri	Sallie Clothilde	7	5	2	508.5	3.96	20.134
H. S. Day	Michigan	Canary's Mercedes	6	8	14	409.5	4.92	20.129
A. & G. Rice		Calamity Jane	7	10	11	572.5	3.50	20.041
Charles D. Pierce	California	Fidessa	4	11	18	570.5	3.51	20.032
C. A. Schroeder	Wisconsin	Netherland Bessie	10	9	5	528.3	3.78	19.974
W. H. Jones	do	Heilo 4th's Pet	5	6	29	632.9	3.15	19.934
A. N. McGeoch	do	Wit Duchess	5	5	5	445.6	4.47	19.904
John Legler & Son	do	Madrigal Netherland Pet	6	8	8	467.6	4.25	19.894
A. A. Hartshorn	New York	Mary R. Pietertje	5	6	10	612.3	3.24	19.866
A. W. Brown	do	Aaggie Wing De Kol	4	11	14	484.8	4.07	19.714
Charles D. Pierce	California	Minnewawa Louise	5	8	0	569.5	3.45	19.658
S. B. Jones & Son	Wisconsin	Jessie Fobes 2d's Tritomia.	6	2	29	539.1	3.65	19.652
H. D. Roe	New Jersey	Aaggie Cornucopia 3d	10	0	24	580.4	3.38	19.612
World's Fair Holstein-Friesian Association.	Missouri	Jolie Johanna	9	11	27	544.6	3.60	19.608
Gillett & Son	Wisconsin	Colantha 4th	6	8	5	513.6	3.81	19.592
H. D. Roe	New Jersey	Lilith Pauline De Kol	3	2	26	569.4	3.44	19.571
W. C. Hunt	New York	Tehee De Kol	7	0	19	528.3	3.70	19.567
H. D. Roe	New Jersey	Aaggie Cornucopia Pauline.	2	11	27	566.4	3.45	19.556
H. Stevens & Sons	New York	Korndyke Queen De Kol	6	7	19	501.4	3.90	19.535
W. B. Smith & Sons	Ohio	Kitty Clyde 2d's Coral	6	4	19	482.5	4.04	19.504
Reddelien Bros	Wisconsin	Winnie Wartena Netherland.	9	9	7	567.8	3.43	19.493
H. D. Roe	New Jersey	Aaggie Cornucopia Pauline.	2	11	27	570.4	3.42	19.477

Seven days' official milk and butter-fat records of Holstein cows (advanced registry)—Con.

Owner.	State.	Name of cow.	Age of cow.			Yield of milk.	Fat in milk.	Yield of butter fat.
			Y.	*m.*	*d.*	*Pounds.*	*Per ct.*	*Pounds.*
W. H. Jones	Wisconsin	Jessie Fobes 2d's Maud 2d.	6	11	13	490.0	3.98	19.479
W. C. Hunt	New York	Edith Prescott Pauline De Kol.	5	10	28	507.5	3.84	19.469
H. A. Moyer	do	Pleasant Valley Kate	8	2	25	600.8	3.24	19.452
Stevens Bros	do	Clothilde Eva	6	0	15	604.5	3.21	19.429
W. H. Jones	Wisconsin	Duchess Ormsby	9	10	14	356.9	5.44	19.418
Gillett & Son	do	Johanna Rue 3d	5	6	21	491.2	3.95	19.392
H. D. Roe	New Jersey	Beryl Wayne	7	7	23	631.4	3.07	19.388
W. C. Hunt	New York	Witra 2d	4	9	20	543.0	3.57	19.383
James Rettie	Ontario, Canada	Kaatje De Boer 2d	5	10	9	445.1	4.34	19.338
H. Stevens & Sons	New York	De Kol 2d's Pauline	4	2	5	443.1	4.36	19.319
A. & G. Rice		Calamity Jane	6	10	8	560.9	3.44	19.310
S. B. Jones & Son	Wisconsin	Lady Longfield 4th	7	1	21	526.5	3.67	19.305
Quentin McAdam	New York	Sadie Vale Concordia	9	3	2	602.8	3.20	19.292
S. B. Jones & Son	Wisconsin	Jessie Fobes 2d's Tritomia.	7	3	5	529.2	3.64	19.289
T. G. Yeomans & Sons	New York	Princess of Wayne 7th	7	4	17	487.9	3.95	19.283
H. A. Moyer	do	Lillian Walker	7	6	6	624.5	3.08	19.232
Gillett & Son	Wisconsin	Johanna De Kol 2d	4	10	11	523.7	3.67	19.229
H. D. Roe	New Jersey	Duchess Aaggie De Kol.	4	11	18	482.7	3.98	19.229
W. A. Matteson	New York	Glen Rose De Kol	5	9	15	559.8	3.43	19.224
A. A. Cortelyou	New Jersey	Susie De Kol	7	8	27	499.9	3.84	19.216
W. A. Matteson	New York	Piebe De Kol Beauty	4	8	22	544.1	3.53	19.191
Charles D. Pierce	California	Matty Clay's Aaggie 2d	6	6	10	499.1	3.84	19.168
James Rettie	Ontario, Canada	Aaltje Posch 4th	10	10	1	494.3	3.86	19.091
Charles D. Pierce	California	Fidessa	6	3	7	431.1	4.43	19.087
World's Fair Holstein-Friesian Association.	Missouri	Joe Bach Josephine	7	0	21	512.5	3.72	19.070
T. G. Yeomans & Sons	New York	Princess of Wayne 7th	7	4	17	489.5	3.89	19.060
A. A. Cortelyou	New Jersey	Belle Netherland Clothilde.	8	7	9	477.0	3.98	18.981
Averill & Gregory	New York	Netherland Maude Mooie.	6	11	14	511.3	3.71	18.958
James Rettie	Ontario, Canada	Kaatje De Boer 2d	4	8	22	435.9	4.34	18.919
T. A. Mitchell	New York	Urma of Oakland	2	3	24	611.6	3.09	18.902
John B. Irwin	Minnesota	Chloe Mechthilde	5	1	8	479.3	3.94	18.895
Averill & Gregory	New York	Netherland Maude Mooie.	5	9	13	475.3	3.97	18.882
H. D. Roe	New Jersey	May Hartog Pauline De Kol.	3	11	21	524.9	3.59	18.830
Averill & Gregory	New York	Netherland Maude Mooie.	5	9	13	458.1	4.11	18.826
James Rettie	Ontario, Canada	Aaltje Posch 4th	8	10	25	490.7	3.83	18.813
A. W. Brown	New York	Aaggie Grace 2d's Pietertje.	6	2	23	651.8	2.89	18.811
H. A. Moyer	do	Edith Prescott Aaggie	6	7	0	518.5	3.63	18.810
Michigan Agricultural College.	Michigan	Houwtje D	6	1	13	625.1	3.01	18.790
E. E. Randall	Wisconsin	De Kol Douglas	3	11	28	480.8	3.90	18.732
Gillett & Son	do	Colantha 4th	8	8	9	543.3	3.44	18.713
C. H. Krueger & Co	Iowa	Bryonia Albia	8	3	20	447.0	4.18	18.685
H. D. Roe	New Jersey	Lilith Pauline De Kol	5	2	18	600.1	3.11	18.683
W. H. Jones	Wisconsin	Lady Oak Fern	4	10	16	521.1	3.58	18.679
R. M. Hotaling	California	Carren Wase De Kol	4	11	21	553.2	3.37	18.651
I. L. Curtis	Wisconsin	Aaggie Greene 3d	8	0	7	589.8	3.16	18.630
H. D. Roe	New Jersey	Lilith Pauline De Kol	5	2	18	533.0	3.50	18.632
Averill & Gregory	New York	Segis Inka	8	2	3	460.3	4.05	18.618
M. E. Moore	Missouri	Shadybrook Gerben	6	9	8	589.8	3.16	18.610
Don J. Wood	New York	Clothilde Artis Topsey	7	1	0	555.7	3.35	18.607
H. A. Moyer	do	Pietertje De Haan	8	2	2	492.2	3.78	18.590
S. B. Jones & Son	Wisconsin	Jessie Fobes 2d's Tritomia.	6	2	29	557.3	3.33	18.550
H. A. Moyer	New York	Daisy Sindt Mechthilde.	4	3	6	509.2	3.64	18.519
H. D. Roe	New Jersey	Zanca De Kol	6	4	15	504.0	3.67	18.508
T. G. Yeomans & Sons	New York	Princess of Wayne 7th	7	4	17	462.9	3.99	18.490
H. D. Roe	New Jersey	Mulvie's Pauline De Kol	6	0	26	496.0	3.72	18.470
Do	do	Roxie Wayne	9	8	21	599.9	3.07	18.441
Gillett & Son	Wisconsin	Duchess Clothilde	9	6	21	528.4	3.49	18.424
W. C. Hunt	New York	Rowena Maid 2d's B	3	10	0	577.7	3.19	18.404
Don J. Wood	do	Clothilde Artis Topsey	6	2	20	515.6	3.57	18.387
W. A. Matteson	do	Pietertje Pledge Princess.	5	2	26	464.0	3.95	18.334
T. G. Yeomans & Sons	do	Mutual Friend 3d	4	3	8	427.9	4.27	18.265
D. H. Goodell	New Hampshire	Paul De Kol Aaggie Queen.	4	8	3	570.5	3.21	18.296
Gillett & Son	Wisconsin	Johanna Aaggie	4	5	9	479.4	3.81	18.288
H. A. Moyer	New York	A. & G. Inka McKinley.	3	3	6	514.2	3.56	18.282

Seven days' official milk and butter-fat records of Holstein cows (advanced registry)—Con.

Owner.	State.	Name of cow.	Age of cow.			Yield of milk.	Fat in milk.	Yield of butter fat.
			Y.	*m.*	*d.*	*Pounds.*	*Per ct.*	*Pounds.*
W. A. Matteson	New York	De Kol Creamelle	4	1	27	596.4	3.07	18.281
W. H. Jones	Wisconsin	Duchess Ormsby	14	2	10	494.7	3.68	18.186
Malcolm H. Gardner	do	Skylark Mercedes De-Kol.	4	1	18	452.9	4.00	18.135
H. D. Roe	New Jersey	Homestead Girl De Kol	4	2	0	499.3	3.63	18.114
T. G. Yeomans & Sons	New York	Sadie Vale Concordia	4	6	3	494.3	3.66	18.103
Chas. D. Pierce	California	Juliana De Kol	2	10	24	450.9	4.01	18.079
Do	do	Minnewawa Louise	4	8	24	510.7	3.54	18.074
W. A. Matteson	New York	Maple croft Maid	5	4	2	530.0	3.41	18.064
Henry Stevens & Son	do	Edith Prescott De Kol	6	4	19	467.6	3.86	18.046
W. H. Jones	Wisconsin	Heilo 4th's Pet	7	6	1	516.9	3.49	18.050
Chas. D. Pierce	California	Juliana De Kol	2	10	24	417.8	4.32	18.043
S. B. Jones & Son	Wisconsin	Jessie Fobes 4th	6	9	28	514.8	3.50	18.036
Averill & Gregory	New York	A. & G. Belle Korndyke	5	2	9	465.3	3.86	17.981
W. H. Jones	Wisconsin	Heilo 4th's Pet	6	6	11	505.6	3.56	17.977
Henry Stevens & Son	New York	Aaggie Grace 2d's Pietertje 2d.	3	5	10	473.3	3.80	17.971
Chas. D. Pierce	California	Drussa	6	7	23	541.0	3.32	17.938
S. B. Jones & Son	Wisconsin	Jessie Fobes 2d's Tritomia.	5	1	27	593.2	3.02	17.928
O. J. Godfrey	New York	Mercedes Kiatta Antje	5	1	3	505.5	3.54	17.913
A. W. Brown	do	Aaggie Grace 2d's Pietertje.	5	1	30	624.9	2.87	17.906
T. G. Yeomans & Sons	do	Mutual Friend 2d's Wayne.	5	10	9	524.6	3.41	17.888
Texas Agricultural and Mechanical College.	Texas	Yentje Netherland	5	5	5	705.5	2.53	17.880
W. A. Matteson	New York	Homestead Cradock De Kol.	3	9	23	476.8	3.75	17.881
James Rettie	Ontario, Canada	Ianthe Jewel Mechthilde.	4	9	18	439.6	4.06	17.867
T. S. Tompkins	Minnesota	Aaggie Careme Parthenea.	6	0	25	553.4	3.22	17.847
H. D. Roe	New Jersey	Zanca De Kol	4	4	25	442.1	4.04	17.851
A. & G. Rice		Calamity Jane	7	10	11	485.8	3.67	17.846
H. D. Roe	New Jersey	Armyn's An 4th	4	1	3	585.6	3.04	17.822
World's Fair H.-F. Association.	Missouri	Dorinda De Kol 2d	5	4	3	516.9	3.45	17.823
W. A. Matteson	New York	Flora Hamilton De Kol	4	8	7	461.5	3.86	17.806
H. A. Moyer	do	Hartog De Kol	8	11	2	375.9	4.74	17.807
H. Stevens & Sons	do	Lady Waldorf	5	2	26	481.0	3.70	17.799
E. H. Knapp	do	Grace Greenwood	9	9	28	476.5	3.74	17.798
S. B. Jones & Son	Wisconsin	Wild Rose Jones 2d	7	8	17	542.5	3.27	17.755
A. N. McGeoch	do	Piebe Queen 2d's Princess.	4	9	0	403.2	4.40	17.743
T. A. Mitchell	New York	Fanette 3d's Pledge 2d	4	10	18	475.1	3.73	17.743
H. Stevens & Sons	do	Aaggie Grace 2d's Pietertje.	8	9	11	511.1	3.47	17.719
Averill & Gregory	do	Nicolo De Kol				462.3	3.83	17.720
W. C. Hunt	do	Aaggie Topsy De Kol	3	9	28	479.0	3.70	17.717
H. D. Roe	New Jersey	Zanca De Kol	6	4	15	479.6	3.69	17.703
Henry Stevens & Son	New York	Korndyke Queen De Kol	8	1	26	467.3	3.79	17.699
S. B. Jones & Sons	Wisconsin	Wild Rose Jones 2d	6	8	26	465.5	3.80	17.691
T. S. Tompkins	Minnesota	Daisy Van Beers	4	8	5	451.0	3.92	17.660
S. B. Jones & Son	Wisconsin	Gracia Ward	3	9	24	508.6	3.47	17.655
A. W. Brown	New York	Small Hopes Beets	5	2	23	489.8	3.60	17.646
Gillett & Son	Wisconsin	Johanna 5th	7	4	10	592.1	2.98	17.640
E. C. Petrie	do	Belle Terzool Mechthilde.	6	4	26	440.6	4.00	17.643
George Rice	Ontario, Canada	Lady Wayne Norine	6	4	14	431.1	4.09	17.627
H. D. Roe	New Jersey	Jetske Roe's Aaggie Artis	5	7	0	541.9	3.25	17.617
Chas. D. Pierce	California	De Natsey Baker	3	0	9	523.6	3.36	17.615
H. D. Roe	New Jersey	Dorothy Ondine Wayne 3d.	6	1	16	562.9	3.12	17.576
Do	do	Brookside Lilith De Kol	6	1	25	456.9	3.84	17.566
C. J. Gilroy	Ontario, Canada	Inka Sylvia	3	2	0	568.3	3.09	17.559
H. A. Moyer	New York	Paul De Kol 2d's Mutual Friend.	9	3	1	527.7	3.33	17.563
E. H. Knapp & Son	do	De Kol Grace Clothilde 2d	5	0	12	498.1	3.52	17.541
H. Stevens & Sons	do	Inka 4th's Pietertje Rose	4	10	11	509.4	3.44	17.522
H. E. Moyer	do	Susie De Kol Paul	3	6	3	514.6	3.40	17.515
W. H. Jones	Wisconsin	Lady Oak Fern	6	11	9	436.9	3.99	17.445
McAdam & Von Heyne.	New York	De Kol Goudgeld	6	2	5	526.7	3.32	17.492
H. Stevens & Sons	do	Pietertje Hengerveld	4	10	11	492.1	3.55	17.482
Do	do	Nanette 3d's Pledge	4	11	13	361.0	4.84	17.470
T. G. Yeomans & Sons	do	Mutual Friend 3d	3	2	24	409.2	4.27	17.472

Seven days' official milk and butter-fat records of Holstein cows (advanced registry)—Con.

Owner.	State.	Name of cow.	Age of cow.			Yield of milk.	Fat in milk.	Yield of butter fat.
			Y.	*m.*	*d.*	*Pounds.*	*Per ct.*	*Pounds.*
A. A. Cortelyou	New Jersey	Dirkje Von Holingen	6	5	28	544.7	3.20	17.454
H. A. Moyer	New York	Juno La Polka	5	9	27	433.2	4.02	17.425
T. A. Mitchell	do	Colie 3d's C	4	10	24	477.1	3.65	17.420
H. D. Roe	New Jersey	Jetske Artis De Kol	4	9	10	530.9	3.28	17.417
W. H. Jones	Wisconsin	Lady Oak Fern	5	11	4	450.3	3.87	17.416
Belle Vernon Farms.	Ohio	Mina Ophelia	7	0	16	558.0	3.11	17.369
E. E. Randall	Wisconsin	Wisconsin Bess	7	6	8	457.3	3.80	17.360
Averill & Gregory	New York	Segis Inka	8	2	3	452.7	3.83	17.332
H. Stevens & Sons	do	Lilith's Beauty 2d	7	5	7	428.7	4.04	17.330
E. E. Randall	Wisconsin	Alcartra Polkadot	4	0	24	421.2	4.11	17.303
Chas. D. Pierce	California	De Natsey Baker	3	0	9	484.2	3.57	17.306
E. E. Randall	Wisconsin	Alcartra Polkadot	3	1	6	459.8	3.76	17.280
Gillett & Son	do	Colantha 4th's Johanna.	4	7	20	526.9	3.28	17.282
A. N. McGeoch	do	Liscomb Aaggie 3d	3	11	26	472.2	3.66	17.267
H. D. Roe	New Jersey	May Hartog Pauline De Kol 2d.	4	1	0	471.2	3.66	17.248
A. N. McGeoch	Wisconsin	Piebe Laura	8	9	27	374.3	4.65	17.239
H. A. Moyer	New York	Gwyn	6	9	23	477.9	3.60	17.217
Matt Richardson	Ontario, Canada	Toitilla Echo De Kol	5	7	6	522.5	3.30	17.219
H. D. Roe	New Jersey	Roxie Wayne De Kol	4	11	9	533.8	3.22	17.204
F. P. Knowles	Massachusetts	Mutual Friend Pauline De Kol.	8	0	15	475.7	3.62	17.199
H. Stevens & Sons	New York	Sara Jewell	5	10	27	419.7	4.10	17.195
Henry Stevens & Son	do	Helena Burke De Kol	9	8	9	454.1	3.79	17.198
S. B. Jones & Son	Wisconsin	Lady Oak 2d	7	2	11	492.9	3.49	17.189
Gillett & Son	do	Johanna Colantha	4	7	15	483.3	3.55	17.147

The records of Holstein cows yielding less than 20 pounds of butter in seven days are too numerous to be given in detail. They are therefore summarized in the following statement:

	Number of cows.
Yielding between 19 and 20 pounds of butter in 7 days	122
Yielding between 18 and 19 pounds of butter in 7 days	197
Yielding between 17 and 18 pounds of butter in 7 days	240
Yielding between 16 and 17 pounds of butter in 7 days	301
Yielding between 15 and 16 pounds of butter in 7 days	371
Yielding between 14 and 15 pounds of butter in 7 days	419
Yielding between 13 and 14 pounds of butter in 7 days	257
Yielding between 12 and 13 pounds of butter in 7 days	275
Yielding between 11 and 12 pounds of butter in 7 days	310
Yielding between 10 and 11 pounds of butter in 7 days	273
Yielding between 9 and 10 pounds of butter in 7 days	241
Yielding between 8 and 9 pounds of butter in 7 days	98
Total yielding between 8 and 20 pounds of butter in 7 days	3,104

Official milk and butter-fat records of purebred Holstein-Friesian cows for over seven days.

Owner.	State.	Name of cow.	Age.			Time.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Y.	m.	d.	Days.	Pounds.	Per ct.	Pounds.
C. A. Wheeler	New York	Gelsche	7	0	00	10	[a]952.5	......	....
McKay Bros	Iowa	Tita Inka Wayne	7	6	24	11	583.6	4.07	23.742
S. B. Jones & Son	Wisconsin	Jessie Fobes Myrtle Piebe.	2	0	29	13	691.0	2.74	18.955
Averill & Gregory	New York	Segis Inka	8	2	3	14	913.0	......	41.150
Henry Stevens & Son.	do	Wilhelma Butter Girl	2	6	14	14	662.2	3.10	20.547
Stevens Bros	do	Toitilla De Kol Hengerveld.	2	1	29	14	531.3	3.23	17.184
T. A. Mitchell	do	Wima of Oakland	2	3	24	14	611.6	3.09	18.902
McKay Bros	Iowa	Geneseo Abbekerk	2	5	2	14	626.4	3.30	20.693
W. A. Matteson	New York	Homestead Gem Sadie De Kol.	2	7	17	14	716.9	3.42	24.847
S. B. Jones & Son	Wisconsin	Jessie Fobes 2d's Tritomia.	7	3	5	14	1,085.9	3.47	37.677
D. H. Goodell	New Hampshire	Margaret Lincoln 2d's De Kol 2d.	3	3	26	14	797.2	3.30	26.327
Do	do	Marteta De Kol	7	7	26	14	808.6	3.37	27.276
W. H. Jones	Wisconsin	Maud Piebe Pauline.	2	11	20	14	667.0	3.67	24.468
C. H. Fisk	New York	Milly Jewel Pietertje	5	1	28	14	792.4	3.71	29.423
D. H. Goodell	New Hampshire	Maid of Vernon 4th	8	9	21	14	861.9	3.11	26.805
McKay Bros	Iowa	Mandel Wayne	5	0	1	14	767.1	3.33	25.512
H. D. Roe	New Jersey	Lady Beryl Wayne	2	2	21	14	649.7	3.94	25.598
S. B. Jones & Son	Wisconsin	Lady Longfield 4th	7	1	21	14	952.0	3.76	35.835
W. H. Jones	do	Lady Oak Fern				14	829.2	3.86	32.034
D. H. Goodell	New Hampshire	Lily Castine	4	5	18	14	841.3	3.83	32.214
C. F. Hunt	New York	Amy Clothilde	7	9	18	14	893.2	3.34	29.861
L. W. Gay	Wisconsin	Bakker Belle Pietertje 2d.	2	1	23	14	584.7	3.47	20.275
Henry Stevens & Son.	New York	Edith Prescott De Kol	6	4	19	14	899.3	3.77	33.944
Geo. T. McNeil	do	Princess Clothilde Maplecroft.	3	8	14	14	738.9	3.55	26.232
Stevens Bros	do	Pudmina	2	11	8	14	818.5	2.98	24.411
D. H. Goodell	New Hampshire	Queen Cantrilla	9	2	16	14	903.7	3.67	33.124
Do	do	Fenna Y. Pietertje	5	6	17	14	962.7	3.04	29.306
Do	do	Ada Witkop Netherland.	3	4	7	14	758.0	3.24	24.545
McAdam & Von Heyne.	New York	Sylva Netherland 3d.	2	0	22	14	595.1	......	17.733
H. Stevens & Sons.	do	May Pietertje Mechthilde.	4	7	20	14	922.9	......	25.414
D. H. Goodell	New Hampshire	De Kol Nymph	5	3	5	14	878.0	3.34	29.317
M. E. Moore	Missouri	Empress Josephine 3d's Lady.	5	3	17	14	869.2	3.18	27.616
A. M. & E. J. Tefft	New York	Aaggie Pauline Wayne De Kol 3d.	4	7	4	14	776.9	3.59	27.897
McKay Bros	Iowa	Roxey Joanna Mercedes.	6	0	28	14	757.9	3.56	26.897
H. G. Whitney	New York	Dione Alban Pride				14	795.0	......	25.976
C. F. Hunt	do	Mercedes Rijaneta Mechthilde.	3	2	21	14	816.1	......	27.356
H. Stevens & Sons.	do	Molly Wood 2d's De Kol.	1	10	29	14	617.4	......	21.717
Malcolm H. Gardner.	Wisconsin	Skylark Mercedes De Kol.	2	1	0	14	636.5	......	24.064
Averill & Gregory	New York	Pauline De Kol Wayne.	5	7	29	14	1,005.4	......	25.619
H. Stevens & Sons.	do	Pet Netherland De Kol.	4	3	1	14	759.1	......	23.336
H. A. Moyer	do	Daisy Sindt Mechthilde.	4	3	6	14	986.7	3.70	36.497
T. A. Mitchell	do	De Kol A	3	1	9	14	564.4	3.77	21.250
D. H. Goodell	New Hampshire	Lily Castine	3	3	23	14	774.4	......	27.356
Henry Stevens & Son.	New York	Pauline Paul Georgie 2d.	2	4	21	14	616.4	3.74	23.064
McKay Bros	Iowa	Nutula 2d	10	6	22	14	959.4	3.33	31.910
W. H. Jones	Wisconsin	Heilo 4th's Pet	5	6	29	14	1,080.0	......	36.279
W. C. Hunt	New York	Helena Pietertje Burke De Kol.	2	1	12	14	708.0	......	21.588
W. A. Matteson	do	Terry De Kol	3	11	10	14	1,008.9	3.16	31.925
H. Stevens & Sons.	do	Fannie Pietertje De Kol.				14	922.0	......	27.479
D. H. Goodell	New Hampshire	Fenna Y. Pietertje				14	797.7	......	23.659
W. H. Grenell	New York	Netherland von Friesland's Lady.	11	8	23	14	998.8	3.19	31.886
C. A. Schroeder	Wisconsin	Netta Pauline De Kol	4	3	20	14	810.1	3.02	24.475
T. A. Mitchell	New York	Aaggie Grace Clothilde 2d.	3	1	12	14	526.4	3.93	20,687

[a] Record attested by owner.

Official milk and butter-fat records of purebred Holstein-Friesian cows for over seven days—Continued.

Owner.	State.	Name of cow.	Age.			Time.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Y.	*m.*	*d.*	*Days.*	*Pounds.*	*Per ct.*	*Pounds.*
W. A. Matteson	New York	Aaggie Grace De Kol Pietertje.	2	0	1	14	491.5	3.38	16.637
Stevens Bros	do	Pontiac Magadora	2	9	9	14	701.2	2.82	19.802
Averill & Gregory	do	Konigen Van Fries De Kol.	7	5	20	14	863.6	......	27.175
W. H. Grenell	do	Manor De Kol Queen	5	11	8	14	789.7	......	28.396
H. Stevens & Sons	do	Pietertje Josephine Abbekerk A.	2	11	16	14	665.8	......	23.410
W. H. Grenell	do	Dora Dean Mondamin.	......			14	806.5	......	25.945
H. Stevens & Sons	do	Maryke Gerben Parthenia.	7	5	24	14	968.7	......	29.908
E. E. Randall	Wisconsin	Alcartra Polkadot	3	1	6	14	940.0	......	32.502
Averill & Gregory	New York	A. & G. De Kol Segis Inka.	......			14	629.2	......	20.216
H. Stevens & Sons	do	Lilith's Beauty 2d	......			14	973.5	......	32.315
C. F. Hunt	do	Plum 10th	6	8	22	14	860.6	3.42	29.401
W. H. Jones	Wisconsin	Jessie Fobes 2d's Maud.	5	8	8	14	907.8	......	31.415
W. H. Grenell	New York	Manor Josephine Lady.	4	8	28	14	854.5	......	27.930
H. Stevens & Sons	do	Jessie Vieman Hengerveld.	3	0	25	14	734.0	......	25.995
H. D. Roe	New Jersey	Armyn's An 4th	......			14	665.4	......	18.338
W. C. Hunt	New York	Pontiac Clothilde De Kol.	4	10	9	14	885.1	3.32	29.413
S. B. Jones & Son	Wisconsin	Grace Fayne 2d	4	11	24	16	1,061.6	......	35.790
O. U. Kellogg	New York	Beauty of Plum 6th	......			16	1,021.0	......	33.546
W. H. Jones	Wisconsin	Jessie Fobes 2d's Maud 2d.	6	11	13	19	1,330.7	3.88	51.603
E. E. Randall	do	Wisconsin Bess	6	7	0	20	1,259.9	......	43.980
Do	do	Alcartra Polkadot	......			20	1,043.4	......	44.201
Stevens Bros	New York	Clothilde Eva	......			21	1,481.2	......	47.091
Do	do	Naiad Netherland De Kol 2d.	2	7	10	21	1,075.4	3.34	35.861
Averill & Gregory	do	Nellie Burke Pietertje.	9	7	23	21	1,142.6	3.93	44.915
W. C. Hunt	do	Pontiac Calypso	2	5	15	21	875.0	4.26	37.255
McKay Bros	Iowa	Geneseo Belle	9	0	1	21	1,321.7	3.69	48.764
Stevens Bros	New York	Pontiac Latona	3	1	12	21	1,011.7	3.34	33.767
McAdam & Von Heyne.	do	Inka Clothilde	4	8	8	21	1,500.6	......	52.040
W. A. Matteson	do	Flora Hamilton De Kol.	4	8	7	21	1,388.4	3.47	48.235
W. C. Hunt	do	Pauline De Kol Mut. Friend.	1	11	24	21	1,003.4	3.74	37.545
W. H. Grenell	do	Susie Josephine	3	10	13	21	1,234.8	......	44.210
Averill & Gregory	do	Nicolo De Kol	4	11	15	21	1,226.7	......	46.703
H. Stevens & Sons	do	Netherland Genesta Collins.	5	11	0	21	1,118.2	......	39.950
Stevens Bros	do	Mechthilde Hengerveld De Kol.	1	9	18	21	852.4	......	27.643
F. B. Fargo	Wisconsin	Jennie Van Beers	4	3	5	22	1,246.9	......	42.586
McKay Bros	Iowa	Leda Hengerveld De Kol.	2	4	24	24	917.1	3.64	33.414
W. H. Jones	Wisconsin	Maud Piebe Pauline.	1	11	29	24	844.2	......	27.986
S. B. Jones & Son	do	Myra Netherland	3	11	24	25	1,312.1	......	51.040
C. D. Pierce	California	De Natsey Baker	3	0	9	25	1,834.5	3.33	61.040
S. B. Jones & Son	Wisconsin	Gracia Ward	3	9	24	26	1,731.4	......	60.500
Do	do	Jessie Fobes 2d's Tritomia.	5	1	27	26	1,984.1	......	62.120
McAdam & Von Heyne.	New York	Sylva Netherland 4th	2	1	8	28	1,172.5	......	35.836
F. B. Fargo	Wisconsin	Ringwood De Kol	3	4	13	28	1,475.7	......	53.255
W. H. Jones	do	Duchess Ormsby 4th.	5	2	21	28	1,574.5	3.68	57.874
H. D. Roe	New Jersey	Shadeland Zora 2d	9	4	16	30	2,160.3	......	69.335
Averill & Gregory	New York	Orpha Keyes	8	6	20	30	1,576.0	......	58.213
W. A. Matteson	do	Paladin 4th's Lady De Kol.	4	1	3	30	2,088.7	......	66.272
W. H. Jones	Wisconsin	Jessie Fobes 2d's Maud 2d.	5	8	8	30	1,978.9	......	63.371
D. H. Goodell	New Hampshire	Paul De Kol Aaggie Queen 2d.	2	2	17	30	1,539.6	......	48.322
H. A. Moyer	New York	Paul De Kol 2d's Mutual Friend.	8	0	4	30	2,045.4	......	62.693
A. J. Daugherity	Illinois	May Rector	8	7	28	30	2,437.7	......	62.604
S. B. Jones & Son	Wisconsin	Jessie Fobes 4th	7	10	1	30	2,490.6	......	64.970

Official milk and butter-fat records of purebred Holstein-Friesian cows for over seven days—Continued.

Owner.	State.	Name of cow.	Age.			Time.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Y.	*m.*	*d.*	*Days.*	*Pounds.*	*Per ct.*	*Pounds.*
W. A. Matteson	New York	Jessie Maida	4	8	1	30	2,325.8	......	78.753
H. Stevens & Sons	do	Grace Pietertje Pauline De Kol.				30	1,623.8	......	60.175
F. B. Fargo	Wisconsin	Kate Colanthus	5	4	0	30	2,037.5	......	61.282
C. D. Pierce	California	Fidessa	4	11	18	30	2,392.2	......	73.080
H. A. Moyer	New York	O. D. De Kol	2	2	28	30	1,534.5	3.03	46.541
W. H. Grenell	do	Manor Star's Josephine.	3	11	7	30	1,863.8	......	67.421
D. H. Goodell	New Hampshire	Queen Cantrilla De Kol.	3	1	19	30	1,709.4	3.22	55.080
H. D. Roe	New Jersey	May Hartog Pauline De Kol.	4	11	8	30	2,552.5	......	89.637
Averill & Gregory	New York	Nicolo De Kol	5	11	9	30	2,017.6	3.61	72.887
C. D. Pierce	California	Drussa	6	7	23	30	2,337.1	3.22	75.257
H. Stevens & Sons	New York	Jessie Veeman Hengerveld.	3	0	25	30	1,659.1	......	54.170
W. C. Hunt	do	Pontiac Abbekerk	2	6	22	30	1,927.3	3.02	58.178
D. H. Goodell	New Hampshire	Paul De Kol Aaggie Queen.	4	8	3	30	2,345.3	......	75.939
H. G. Whitney	New York	Dione Alban Pride				30	1,574.6	......	51.283
D. H. Goodell	New Hampshire	Ena De Kol	4	8	29	30	1,711.3	3.15	53.953
H. Stevens & Sons	New York	Korndyke Queen De Kol.	6	7	19	30	2,015.8	......	77.767
C. D. Pierce	California	Fidessa	6	3	7	30	1,929.6	3.78	72.896
W. A. Matteson	New York	Eke De Kol	3	1	11	30	1,743.0	3.05	53.103
H. A. Moyer	do	Lillian Walker	7	6	6	30	2,409.4	......	71.615
W. A. Matteson	do	Duchess Ormsby 3d	8	2	18	30	1,821.1	3.46	63.037
Averill & Gregory	do	Tina Pauline	8	9	7	30	1,517.3	......	56.230
H. Stevens & Sons	do	Manor De Kol's Helena Burke.	5	2	24	30	2,162.1	......	65.231
A. N. McGeoch	Wisconsin	Liscomb Aaggie 3d	3	11	26	30	1,938.4	......	69.515
H. Stevens & Sons	New York	Manor De Kol Belle	4	1	20	30	1,988.5	......	62.958
C. D. Pierce	California	Aralia De Kol	3	6	23	30	2,313.7	3.00	69.365
F. B. Fargo	Wisconsin	Ava Colanthus Piebe	2	3	1	30	1,380.3	3.94	54.436
H. D. Roe	New Jersey	Armyn's An 4th				30	2,311.0	......	71.780
C. D. Pierce	California	Aralia De Kol				30	1,566.4	......	43.031
Stevens Bros	New York	Pontiac Clothilde Hengerveld.	4	0	2	30	1,609.7	4.00	64.442
W. C. Hunt	do	Pontiac Jewel	2	3	17	30	1,445.8	3.85	55.701
W. A. Matteson	do	Piebe Gem De Kol	2	8	6	30	1,819.7	......	45.111
H. A. Moyer	do	Pietertje DeHaan	7	1	11	30	2,029.9	......	67.677
W. A. Matteson	do	Almeda Luecke 2d				30	1,918.8	......	64.426
Averill & Gregory	do	Altoana Pietertje				30	1,967.8	......	63.881
W. A. Matteson	do	Piebe De Kol Beauty	4	8	22	30	2,085.1	3.55	73.952
W. H. Jones	Wisconsin	Piebe Laura	12	9	7	30	1,892.1	3.45	65.187
W. C. Hunt	New York	Pontiac Netherland De Kol.	2	8	8	30	1,847.5	3.46	63.884
Do	do	Prescott Inka De Kol Clothilde.	2	2	11	30	1,583.8	3.19	50.524
Do	do	Aaggie Topsy De Kol.	3	9	28	30	2,060.8	3.47	71.501
W. H. Jones	Wisconsin	Aaltje Salo Reka	5	2	25	30	2,019.3	3.05	61.550
W. A. Matteson	New York	De Kol Creamelle	4	1	27	30	2,419.9	2.83	68.499
E. E. Randall	Wisconsin	De Kol Douglas	3	11	28	30	1,992.7	3.71	74.003
A. N. McGeoch	do	Duchess Ormsby 2d's Queen.	5	6	26	30	1,672.7	4.29	71.715
H. A. Moyer	New York	Edith Prescott Aaggie.	6	7	0	30	2,082.8	3.40	70.896
T. A. Mitchell	do	A. & G. De Kol Pauline.	3	6	13	30	1,570.2	3.24	50.847
Averill & Gregory	do	A. & G. De Kol Segis Inka.	3	10	12	30	1,778.1	3.47	61.748
H. A. Moyer	do	A. & G. Inka McKinley.	3	3	6	30	2,186.0	3.49	76.386
W. C. Hunt	do	Helena Pietertje Burke De Kol.	2	1	12	30	1,758.8	......	47.920
W. A. Matteson	do	Homestead Aaggie De Kol.	2	11	18	30	1,572.2	......	58.520
Averill & Gregory	do	Homestead DeFreule De Kol.	3	10	19	30	1,484.7	......	40.111
H. A. Moyer	do	Mutual Friend 3d's Beryl.	2	3	20	30	1,233.7	3.38	41.710
S. B. Jones & Son	Wisconsin	Myra Netherland	5	1	26	30	1,907.4	3.46	65.995
R. M. Hotaling	California	Nadjesda's Nadgy	8	9	5	30	2,218.8	2.55	56.628
C. A. Schroeder	Wisconsin	Netherland Bessie	10	9	5	30	2,185.4	3.84	83.897
Do	do	Netherland Johanna De Kol 2d.	2	4	3	30	1,537.0	3.42	52.521
S. B. Jones & Son	do	Glen De Kol Artis	3	5	26	30	2,007.2	3.01	60.341
W. A. Matteson	New York	Glen Rose De Kol	5	9	15	30	2,333.3	3.27	76.249

Official milk and butter-fat records of purebred Holstein-Friesian cows for over seven days—Continued.

Owner.	State.	Name of cow.	Age.			Time.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Y.	*m.*	*d.*	*Days.*	*Pounds.*	*Per ct.*	*Pounds.*
S. B. Jones & Son	Wisconsin	Grace Fayne 2d	6	1	22	30	2,190.4	2.84	62.196
Do	do	do	7	2	25	30	2,524.0	3.40	85.859
S. N. Sherman	New York	Grindetia De Kol	3	11	8	30	2,096.1	2.94	61.596
Henry Stevens & Son.	do	Helena Burke De Kol	9	8	9	30	1,897.0	3.81	72.198
Stevens Bros	do	Helena Burke Heugerveld De Kol.	5	3	15	30	2,023.7	3.14	63.538
Do	do	Hengerveld Belle Dekol.	1	11	3	30	1,385.3	3.07	42.505
W. A. Matteson	do	Heroine De Kol	7	10	27	30	2,065.8	3.02	62.450
Do	do	Homestead Craddock De Kol.	3	9	23	30	1,936.1	3.42	66.305
Do	do	Homestead Gem Pauline De Kol.	4	10	28	30	2,201.4	2.99	65.804
S. B. Jones & Son	Wisconsin	Jessie Fobes 6th's Violet.	3	11	29	30	1,896.5	2.94	55.655
Stevens Bros	New York	Jessie Veeman C	7	1	23	30	1,914.4	3.31	63.300
W. C. Hunt	do	Johanna Netherland De Kol.	2	7	1	30	1,746.5	2.76	48.197
C. D. Pierce	California	Juliana De Kol	2	10	24	30	1,852.7	3.99	73.975
H. A. Moyer	New York	Juno La Polka	5	9	27	30	1,830.7	3.80	69.616
John B. Irwin	Minnesota	Kaan Marie Mechthilde.	3	10	1	30	1,702.3	3.22	54.826
Univ. of Nebraska	Nebraska	Karen 2d	4	2	7	30	1,370.4	3.82	52.370
C. D. Pierce	California	Romeo Aaggie's Acme.	7	0	13	30	1,865.5	......	71.205
W. C. Hunt	New York	Rowena Maid 2d's B.	3	10	0	30	2,333.8	......	73.188
McAdam & Von Heyne.	do	Ruby Shadeland De Kol.	3	4	16	30	1,740.1	......	53.117
Do	do	Sadie Vale Concordia.	10	2	24	30	2,752.6	......	98.937
W. C. Hunt	do	Riverside De Kol	4	8	15	30	1,861.5	......	62.984
C. D. Pierce	California	Roma Princess	3	4	3	30	1,627.2	......	52.449
S. B. Jones & Son	Wisconsin	Jessie Fobes 2d's Tritomia.	6	2	29	30	2,299.8	3.23	74.213
H. A. Moyer	New York	Pleasant Valley Kate.	8	2	25	30	2,514.7	3.19	80.090
W. C. Hunt	do	Pleasant Valley Kate 2d.	5	7	29	30	2,181.1	......	69.790
Averill & Gregory	do	Regis Princess of Wayne's De Kol.	5	4	9	30	2,096.7	......	59.663
Do	do	Rhoda De Kol Colantha.	2	3	28	30	1,416.9	......	39.742
Stevens Bros	do	Frontier Jessie Veeman.	3	5	14	30	1,565.3	3.05	47.703
C. D. Pierce	California	Manor De Kol Belle 2d.	3	7	7	30	1,878.2	3.56	66.934
H. A. Moyer	New York	Manor De Kol Kate	1	11	28	30	1,646.3	3.34	54.946
S. B. Jones & Son	Wisconsin	Wild Rose Jones 2d	8	10	0	30	2,122.3	3.17	67.328
W. B. Smith & Son	Ohio	Sally de Vries	2	10	4	30	1,495.0	......	47.645
McKay Bros	Iowa	Leda Hengerveld De Kol.	3	5	23	30	1,680.3	3.48	58.449
H. A. Moyer	New York	Leila Pietertje Inka De Kol.	3	11	4	30	1,805.6	3.42	61.816
S. B. Jones & Son	Wisconsin	Lady Oak 2d's Piebe De Kol.	2	11	16	30	1,539.4	3.87	59.569
Do	do	do	1	11	8	30	1,244.4	3.67	45.629
W. A. Matteson	New York	Topsy Barber	6	1	4	30	2,272.6	2.96	67.276
D. H. Goodell	New Hampshire	Lucretia De Kol	3	3	21	30	1,875.4	3.21	60.134
W. H. Jones	Wisconsin	Lady Oak Fern	6	11	9	30	1,815.5	3.85	69.923
R. M. Hotaling	California	Lady La Polka Netherland.	4	6	22	30	1,862.6	3.34	62.271
C. D. Pierce	do	Minnewawa Lily	5	4	10	30	1,682.2	3.91	65.765
Do	do	Minnewawa Louise	5	8	0	30	2,320.5	3.38	78.533
R. M. Hotaling	do	Molly Gordon	5	5	29	30	2,041.2	3.01	61.344
W. H. Jones	Wisconsin	Jennie Pauline Burke.	2	3	10	30	1,085.6	3.52	38.214
H. Stevens & Son	New York	Aaggie Lily Pietertje De Kol.	3	0	4	30	1,676.2	3.36	56.271
W. S. Carpenter	Michigan	Mazie Johanna	2	1	11	30	1,354.2	2.93	39.738
M. S. Campell	Illinois	Mechthilde Daisy Checker.	4	1	3	30	1,654.4	3.92	64.905
W. C. Hunt	New York	Mercedes Rijaneta Mechthilde.	4	2	8	30	1,990.2	3.28	65.284
Averill & Gregory	do	Aaggie 3ds Wayne Pauline 2d.	......			30	1,736.3	......	57.162
W. H. Jones	Wisconsin	Aaltje Salo Reka	......			30	1,880.3	......	61.193
W. S. Carpenter	Michigan	Belle Moore Zante	......			30	1,560.1	......	54.827

Official milk and butter-fat records of purebred Holstein-Friesian cows for over seven days—Continued.

Owner.	State.	Name of cow.	Age.			Time.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Y.	*m.*	*d.*	*Days.*	*Pounds.*	*Per ct.*	*Pounds.*
McAdam & Von Heyne.	New York	Clara J	......			30	1,851.7	......	59.519
Averill & Gregory	do	Clothilde Artis Belle 2d.	......			30	1,642.5	......	56.529
Do	do	Inka Kathleen's Pietertje.	11	11	0	30	1,929.1	......	61.333
H. Stevens & Sons	do	Inka Pietertje Hengerveld.	2	1	6	30	1,013.8	......	35.334
H. D. Roe	New Jersey	Jarie Pauline De Kol	7	4	16	30	2,172.4	......	79.043
H. Stevens & Sons	New York	Korndyke Queen 2d	2	1	21	30	1,219.8	......	44.372
W. H. Jones	Wisconsin	Lady Oak Fern	5	11	4	30	1,875.4	......	70.311
H. Stevens & Sons	New York	Lady Waldorf	5	2	26	30	2,320.2	......	69.549
H. A. Moyer	do	Pietertje De Haan	8	2	2	30	2,090.6	3.63	75.807
M. S. Campbell	Illinois	Pietertje Echo De Kol.	6	1	14	30	1,471.7	3.58	52.665
W. A. Matteson	New York	Pietertje Pledge Princess.	5	2	26	30	2,050.8	3.42	70.047
A. N. McGeoch	Wisconsin	Dame Marjory De Kol.	......			30	1,482.6	......	52.071
McAdam & Von Heyne.	New York	De Kol Goudgeld	......			30	1,837.3	......	55.715
Averill & Gregory	do	De Kol Netherland Frazier.	......			30	1,734.8	......	68.190
C. D. Pierce	California	De Natsey Baker	......			30	1,689.9	......	56.523
E. E. Randall	Wisconsin	Alcartra Polkadot	4	0	24	30	1,988.9	3.95	78.483
Wm. Everson	do	Alice De Kol Wayne of Lakeside.	1	11	6	30	1,594.1	3.08	49.028
E. E. Randall	do	Allie Nig	2	0	11	30	1,387.2	3.73	51.698
H. D. Roe	New Jersey	Aaggie Cornucopia Pauline.	4	11	4	30	2,640.3	4.17	110.093
H. A. Moyer	New York	Aaggie De Kol Pauline Beets.	2	2	14	30	1,339.5	3.16	42.270
R. M. Hotaling	California	Aaggie Duchess Pietertje.	3	0	5	30	1,798.5	3.41	61.347
W. H. Grenell	New York	Aaggie Grace Anna	1	11	21	30	1,397.8	3.28	45.856
H. A. Moyer	do	Grindetia De Kol	2	10	16	30	1,562.2	......	46.776
Do	do	Grindetia 4th	6	9	18	30	2,102.5	......	63.924
Do	do	Gwyn	6	9	23	30	1,968.0	......	70.445
F. B. Fargo	Wisconsin	Hannah Melchior	4	8	2	30	1,980.9	......	59.577
H. Stevens & Sons	New York	Dora De Kol Hengerveld.	......			30	1,676.9	......	53.509
Averill & Gregory	do	Drosky Artis	......			30	1,861.4	......	64.446
Do	do	Ethel Clothilde	......			30	1,821.2	......	58.057
C. D. Pierce	California	Eva Blanco	......			30	1,461.8	......	44.619
W. S. Carpenter	Michigan	Fannie Douglas 4th	......			30	1,786.2	......	55.900
Averill & Gregory	New York	Segis Inka	9	5	16	30	2,272.4	3.68	83.586
W. A. Matteson	do	Shadeland Lilith	8	11	6	30	2,230.6	2.97	66.209
H. A. Moyer	do	Small Hopes De Kol	6	3	17	30	1,903.4	3.34	63.530
D. H. Goodell	New Hampshire	Sue Vernon De Kol	2	11	22	30	1,731.1	2.91	50.331
H. A. Moyer	New York	Susie De Kol Paul	3	6	3	30	2,307.3	3.00	69.130
W. C. Hunt	do	Tchee De Kol	7	0	19	30	2,152.7	3.58	77.033
A. N. McGeoch	Wisconsin	Beatrice Ormsby	2	11	16	30	1,282.9	3.91	50.145
Stevens Bros	New York	Beryl Mutual Wayne De Kol.	1	11	29	30	1,198.3	2.97	35.607
R. M. Hotaling	California	Bohemian Girl	3	10	0	30	1,627.1	3.00	48.831
H. D. Roe	New Jersey	Brookside De Kol Pauline.	4	7	27	30	1,915.3	3.52	67.420
W. A. Matteson	New York	Canary's Mercedes' Brightest.	5	4	19	30	1,866.2	3.74	69.808
Wm. Everson & Son	Wisconsin	Canary's Mercedes' Victoria.	6	2	22	30	1,941.8	3.44	66.816
D. H. Goodell	New Hampshire	Castine Witkop	5	10	23	30	1,924.1	3.32	63.893
McKay Bros	Iowa	Claradina De Kol	3	5	23	30	1,670.2	3.43	57.272
Stevens Bros	New York	Clothilde Eva	6	0	15	30	2,470.7	3.17	78.210
W. C. Hunt	do	Winana Pietertje De Kol.	4	9	29	30	2,458.0	3.37	82.783
E. E. Randall	Wisconsin	Wisconsin Bess	7	6	18	30	1,919.4	3.60	69.117
W. C. Hunt	New York	Witra 2d	4	9	20	30	2,469.7	3.25	80.284
W. A. Matteson	do	Zora De Kol	3	2	19	30	1,956.4	3.07	60.059
T. G. Yeomans & Sons.	do	Princess of Wayne[a]	11	10	0	30	3,182.1	......	......
D. B. Whipple	do	Pietertje 2d	9	9	0	31	3,289.6	......	......
H. D. Roe	New Jersey	Lilith Pauline De Kol.	......			35	3,248.7	......	101.996
S. B. Jones & Son	Wisconsin	Wild Rose Jones 2d	7	8	17	35	2,509.5	......	80.420
W. H. Jones	do	Piebe Laura	......			36	2,285.7	3.42	78.224
D. H. Goodell	New Hampshire	Paul De Kol Aaggie Queen.	4	8	3	37	2,804.8	......	93.206

[a] Record attested by owner.

Official milk and butter-fat records of purebred Holstein-Friesian cows for over seven days—Continued.

Owner.	State.	Name of cow.	Age.			Time.	Yield of milk.	Fat in milk.	Yield of butter fat.
			Y.	*m.*	*d.*	*Days.*	*Pounds.*	*Per ct.*	*Pounds.*
C. D. Pierce	California	Aralia De Kol				40	2,079.0		56.155
Do	do	Roma Princess	3	4	3	40	2,191.3		68.229
Averill & Gregory	New York	Netherland Maud Mooie.	5	9	13	42	2,753.3		106.085
H. Stevens & Sons.	do	Manor De Kol's Helena Burke.	5	2	24	42	3,004.5		89.297
W. H. Jones	Wisconsin	Aaltje Salo Reka				44	2,941.1	3.07	90.408
C. D. Pierce	California	Manor De Kol Belle 2d.				50	3,065.7	3.47	106.376
Do	do	Drussa				60	4,507.5	3.24	145.830
Do	do	Fidessa	6	3	7	60	3,830.7	3.55	136.081
W. A. Matteson	New York	Paladin 4th's Lady De Kol.	4	1	3	60	3,976.0		126.192
C. D. Pierce	California	Juliana De Kol				60	3,512.6	4.00	140.478
McAdam & Von Heyne.	New York	Sadie Vale Concordia	10	2	24	60	5,093.6		176.420
C. D. Pierce	California	Juliana De Kol				100	5,866.0	3.87	227.046
H. Stevens & Sons.	New York	Korndyke Queen De Kol.	6	7	19	180	9,785.6		346.415
Do	do	do	6	7	19	182¼	9,859.4	3.55	349.636

RECORDS OF PUREBRED JERSEY COWS.

Milk and butter-fat records of purebred Jersey cows for short periods.

Owner.	State.	Name of cow.	Age.	Time.	Yield of milk.	Fat milk.	Yield of butter fat.
			Yrs.	*Days.*	*Pounds.*	*Per ct.*	*Pounds.*
E. W. Mosher	New York	Emma's Pearl		1	53.50		
W. B. Goodrich	Iowa	Baroness Lily		1	44.70		
D. A. Jordan	Indiana			1			2.14
M. M. Offutt	Texas	Texas Belle Pogis		1	53.00		
W. R. Spann	do	Effie of Jefferson		1	56.00		
Geo. H. Sweet	New York	Pride's Olga 4th		1	65.30		
W. H. Jones	Wisconsin			2	61.75	4.8	2.96
A. M. Stevens	Washington	Beatrice		2	71.06	5.83	4.14
Do	do	Twenty-six		2	77.11	5.76	4.44
W. W. Hanchett	Michigan	Rose of Ridgeway	6	20	915.00	5.10	46.67
W. R. Spann	Texas	Lovely of St. Lambert		21	1,071.00		
W. W. Hanchett	Michigan	Rose of Ridgeway	5	28	1,061.60	5.56	59.02
W. B. Goodrich	Iowa	Baroness Lily		30	1,281.40		
Geo. H. Sweet	New York	Pride's Olga 4th		31	1,941.90		

The records in the table which follows (with the exception of the columns containing percentage and pounds of fat) were taken from the reports of the American Jersey Cattle Club, these having been accepted by the club for publication on the affidavits of the managers of the tests or the certificates of the owners of the cows tested. The percentages and amounts of butter fat have been calculated from the quantity of milk and butter given.

Weekly butter tests of purebred Jerseys above 23 pounds to July 15, 1902.

Owner.	State.	Name of cow.	Age.		Yield of milk.	Butter fat in milk (calculated).[a]		Churned butter.	Year.	Feed.
			Ys.	*mos.*	*Pounds.*	*Per cent.*	*Pounds.*	*Pounds.*		
Mrs. J. H. Martin	New York	Princess of Dorset	5	2	368.0	[b]8.18	30.09	[b]35.1	1896	10 pounds peas, corn and oats, 5 pounds bran, 4 pounds oil meal, daily; clover pasture.
Matthews & Humes	Alabama	Little Goldie 38671	7	7	251.3	[b]11.8	29.57	[b]34.5	1892	140 quarts corn meal, 56 quarts bran, 21 quarts linseed meal; pasture.
C. E. Still	Missouri	Hallie Kinloch 80148	7	6	299.7	[b]9.7	29.06	[b]33.9	1898	30 to 50 pounds daily of mill feed (cotton-seed meal 16 per cent, oilmeal 16 per cent, rolled oats 20 per cent, corn meal 24 per cent, bran 16 per cent, sugar 8 per cent,) and pasture.
A. D. McBride	New York	Exile's Belle 40524	4	11	230.5	[b]12.0	27.77	[b]32.4	1891	224 quarts grain (corn meal 150, cotton-seed meal 100, middlings 45, bran 20, ground oats 25 pounds); 140 pounds hay.
C. E. Still	Missouri	Bessie Lewis 66379	8	9	349.4	[b]7.92	27.69	[b]32.3	1898	15 quarts corn and oats, 15 quarts bran, 3 quarts oil meal daily; clover hay.
Lewis Walker	Pennsylvania	Jimp 86488	8	1	471.6	5.65	26.66	31.1	1899	1¼ bushels brewers' grains, 16 pounds cotton-seed meal, 6 pounds ground oats, 2 quarts potatoes, daily; pasture.
H. A. Huntington	Connecticut	Maquilla's Violet 69774	4	7	186.5	[b]14.30	26.66	[b]31.1	1895	111 pounds provender, 32½ pounds cotton-seed meal, 103 pounds ensilage; hay.
C. A. Sweet	New York	Massey Polo 67010	7	3	354.6	7.35	26.06	30.4	1894	12 quarts corn meal, 6 quarts ground oats, 6 quarts bran, 4 quarts oil meal, daily; pasture.
J. H. Walker	Massachusetts	Insie of Riverside 23825	4		289.8	[b]8.99	26.06	[b]30.4	1886	4 quarts corn meal, 2 quarts shorts, 1 peck carrots, daily; hay; pasture.
D. F. Appleton	do	Cornwall Maid 19024	5	3	....	....	25.54	29.8	1887	6 quarts corn meal, 7 quarts oatmeal, 2 quarts pea meal, 1 quart oil meal, 6 quarts middlings, daily.
O. F. Fuller	do	Rosa F. W. 13226	9	1	200.5	[b]12.74	25.54	[b]29.8	1886	20 pounds fine feed, 14 pounds corn meal, 2 pounds pea meal, 1 pound horse and cattle food, daily; hay; ensilage.
Miller & Sibley	Pennsylvania	Bess Pogis of Prospect	6	2	408.0	6.11	24.94	29.1	1895	56 quarts ground oats, 42 quarts corn meal, 42 quarts ground oil cake, 28 quarts bran, per week; sweet corn; pasture.
Columbia J. C. Co	Tennessee	Landseer's Fancy 2876	11	7	152.5	[b]16.30	24.86	[b]29.0	1885	8 quarts corn hearts, 8 quarts oats, 4 quarts wheat bran, daily; pasture.
Mrs. L. A. Morse	New York	Daphne of Arcadia	7	3	274.0	[b]9.01	24.69	[b]28.8	1889	12 quarts (mixture corn meal, ground oats, bran, oilmeal) daily.
Maury Jersey Farm	Tennessee	Bisson's Belle 31144	7	4	257.8	[b]9.51	24.51	[b]28.6	1890	5 gallons corn meal, 2 gallons bran, daily.
Van Deusen & Bishop	Massachusetts	Melia Ann 3d	7	5	375.5	6.51	24.43	28.5	1897	42 quarts corn hearts, 14 quarts cotton-seed meal, 21 quarts oil meal, 42 quarts wheat middlings, 210 pounds beets and carrots, and hay.
Miller & Sibley	Pennsylvania	Gipsy's Berry Duchess	6	2	328.0	7.42	24.34	28.4	1897	84 quarts corn meal, 84 quarts ground oats, 28 quarts ground oilcake, 28 quarts bran; carrots.

C. E. Still	Missouri	Ida's Dream 2d	5	5	329.1	7.40	24.34	28.4	1898	9 pounds corn meal, 3 pounds ground oats, 6 pounds bran, 6 pounds linseed meal, daily; clover hay.
W. H. Dexter	Massachusetts	Aldarine 3d 27482	7	3	248.8	[b]9.68	24.09	[b]28.1	1891	9 pounds corn meal, 3 pounds ground oats, 6 pounds bran, 6 pounds linseed meal, 18 pounds cut hay, daily.
C. A. Sweet	New York	Matina of Riverside	9	9	426.4	5.59	23.83	27.8	1897	9 quarts corn meal, 9 quarts bran, 12 quarts ground oats, 3 quarts oil meal, daily.
Miller & Sibley	Pennsylvania	Gipsy's Pride 2d	9		295.5	[b]8.06	23.83	[b]27.8	1893	12 quarts corn meal, 6 quarts ground oats, 4 quarts oilmeal, daily; pasture.
J. H. Walker	Massachusetts	Dove Dee 18059	4	3	197.7	[b]11.97	23.66	[b]27.6	1886	4 quarts corn meal, 4 quarts shorts, daily; cut clover; pasture.
W. A. and A. F. Mullin.	Pennsylvania	Paletta of Darlington	6	2	274.3	[b]8.59	23.57	[b]27.5	1888	17 pounds chopped oats and corn, 7½ pounds bran, daily.
J. A. Middleton	Kentucky	Lady Cloud 19358	4		235.5	[b]9.97	23.49	[b]27.4	1886	25 pounds (corn meal, oil meal, and bran) daily; pasture.
Maury Jersey Farm	Tennessee	Toltec's Fancy 27172	5	4	130.3	[b]17.96	23.40	[b]27.3	1889	4 gallons corn and oats, daily.
J. M. Logan	Texas	Mary of Glenoir 59940	8	9	326.3	7.14	23.31	27.2	1898	1½ gallons bran, 1 quart corn chop, ½ gallon ground oats, 1 pint cotton-seed meal, daily; hay.
Michel Hilgert	Missouri	Bachelor's Juliet	7	9	317.4	7.34	23.31	27.2	1900	6 pounds corn meal, 16 pounds bran, 8 pounds oat meal, 2 pounds oil meal, daily; clover hay.
G. F. Miller	Kansas	Rosetta of Whiteland	14	4	201.0	[b]11.60	23.31	[b]27.2	1890	29½ quarts bran, 4 quarts corn chop, 3½ quarts oil meal, 3½ quarts ground oats, daily.
D. F. Appleton	Massachusetts	Eurotisama	5	1	267.6	[b]8.68	23.23	[b]27.1	1889	8 pounds corn meal, 8 pounds middlings, 7 pounds ground oats, daily.
T. L. Dodd	Tennessee	Mother Cary 11746	4	6	149.0	[b]15.59	23.23	[b]27.1	1884	2 quarts corn meal, 12 quarts bran, daily; clover hay; pasture.
C. A. Sweet	New York	Pride's Olga 4th 96870	5	11	420.6	5.50	23.14	27.0	1899	15 quarts bran, 9 quarts ground oats, 6 quarts corn meal, 1½ quarts oil meal, daily; green oats and peas.
J. H. Walker	Massachusetts	Canata 10523	8		248.1	[b]9.33	23.14	[b]27.0	1886	6 quarts corn meal, 4 quarts ground oats, 3 quarts shorts, daily.
M. E. Miller	Virginia	Eastwood Clearwater	3	11	263.0	[b]8.80	23.14	[b]27.0	1888	4 quarts corn meal, 4 quarts bran, daily.
H. C. Schlegel	Indiana	Hilda Glenn 81195	5	2	239.9	[b]9.65	23.14	[b]27.0	1896	105 quarts (corn and cob meal ⅓, ground wheat ⅓, ground oats ⅓), 14 quarts oil-cake meal, per week; pasture.
Geo. Smith	Canada	Allie of St. L. 24991	5	11	329.0	6.99	22.97	26.8	1886	34 to 38 pounds grain (ground oats 100, bran 40, oil meal 60) daily.
J. G. Dutcher	New York	Flower of Meridale 64537	6	11	356.5	6.42	22.89	26.7	1896	12 pounds corn meal, 8 pounds bran, 5 pounds ground oats, 2 pounds oil meal, daily; hay; pasture.
C. Easthope	Ohio	Nancy Lee 7618	7	2	360.8	6.30	22.72	26.5	1883	6 quarts bran, 4 quarts corn meal, daily; pasture.
D. W. Bishop, jr.	Massachusetts	Chilioness Queen 82973	5	3	323.3	7.03	22.72	26.5	1897	63 quarts bran, 78 quarts oats, 21 quarts corn meal, weekly; clover pasture.
Miller & Sibley	Pennsylvania	Fable 62520	6	1	304.0	7.41	22.54	26.3	1894	84 quarts ground oats, 56 quarts corn meal, 28 quarts bran, 14 quarts oil cake, 15 pounds cabbage, 15 pounds carrots and sugar beets, hay.

---

[a] Calculated on basis of 85.7 per cent fat in butter, standard adopted by the Association of Agricultural Colleges and Experiment Stations.

[b] This yield, if normal butter, calls for an abnormally high percentage of butter fat in the milk, as shown in the calculated percentages, and this renders the record open to question.

Weekly butter tests of purebred Jerseys above 23 pounds to July 15, 1902—Continued.

Owner.	State.	Name of cow.	Age.		Yield of milk.	Butter fat in milk (calculated).		Churned butter.	Year.	Feed.
			Ys.	*mos.*	*Pounds.*	*Per cent.*	*Pounds.*	*Pounds.*		
G. M. Jewett	Maryland	Geranium 2d 7838	7	6	244.8	a 9.21	22.54	a 26.3	1885	30 pounds (ground corn; oats, seconds; bran) daily; pasture.
C. Dixon	Ohio	Pridalia 17249	8		289.7	7.78	22.54	26.3	1890	7 pounds corn meal, 3 pounds germ bran, daily.
T. G. Bush	Alabama	Minnie Parker 38718	10	5	309.0	7.27	22.46	26.2	1896	350 pounds cut corn and sorghum, 56 quarts bran, 14 quarts cotton-seed meal, 28 quarts oats, 14 quarts shorts, 28 quarts corn meal, weekly; pasture.
Mrs. A. C. E. Shoemaker.	Maryland	Fill Pail 2d 24388	4	2	207.9	a 10.76	22.37	a 26.1	1885	Pea meal, ground oats, linseed cake, wheat bran, clover hay, beets and carrots.
C. A. Sweet	New York	Inez of Riverside	11		463.8	4.82	22.37	26.1	1897	9 quarts ground oats, 9 quarts bran, 6 quarts corn meal, 3 quarts oil meal, daily; green corn; pasture.
C. E. Still	Missouri	Pedro's Happy Maid	6	5	287.3	7.76	22.29	26.0	1899	15 quarts corn and oats, 15 quarts bran, 3 quarts linseed meal, daily; hay.
Miller & Sibley	Pennsylvania	Ida's Alpha 64536	7	2	280.8	7.94	22.29	26.0	1896	63 quarts ground oats, 63 quarts corn meal, 42 quarts bran, 21 quarts ground oil cake, 7 pecks carrots.
J. H. Walker	Massachusetts	Daisy Morrison 14035	4	4	254.0	a 8.71	22.12	a 25.8	1886	6 quarts corn meal, 4 quarts shorts, 4 quarts oat meal, daily.
Belmont Jersey Cattle Co.	Ohio	Ruthione 31514	7	4	263.1	a 8.41	22.12	a 25.8	1890	6 pounds malt, 5 pounds corn, oat, and barley chop, 4 pounds bran, 2 pounds oil meal, daily.
J. F. White	New York	Nina Ress of Sennett	7	9	301.6	7.30	22.03	25.7	1901	84 quarts bran, 96 quarts ground oats, 21 quarts corn meal; 1 bushel corn ensilage, 1 bushel pea-vine ensilage; hay.
M. Hilgert	Missouri	Harry's Fair Lady 103482	6	2	323.9	6.80	22.03	25.7	1899	6 pounds corn hearts, 4 pounds wheat bran, 6 pounds ground oats, 2 pounds oil meal, daily; hay; pasture.
L. H. Morse	New York	Dutchess Noble	5	1	268.5	a 8.14	21.86	a 25.5	1888	3 quarts ground oats, 3 quarts corn meal, 2 quarts bran, 1 pint oil meal, daily.
C. A. Sweet	do	Mona Caird 75776	5	3	362.3	6.03	21.86	25.5	1895	21 quarts corn meal, 63 quarts bran, 10½ quarts oil meal, 21 quarts cotton-seed meal, 84 quarts ground oats.
Do	do	Lady Grace of Upholme	7	10	319.8	6.78	21.69	25.3	1894	12 quarts ground oats, 8 quarts corn meal, 5 quarts bran, 3 quarts oil meal, daily; hay; pasture.
F. N. Drake	Nevada	Prospect's Belle	5	11	311.5	6.96	21.69	25.3	1900	50 pounds bran, 35 pounds boiled oats, 2 pounds linseed meal, 49 pounds potatoes.
F. W. Hart	Ohio	Gazelle's Fawn	6	1	333.1	6.51	21.69	25.3	1898	7 pounds corn meal, 7 pounds bran, 4 pounds oil meal, 3 pounds ground oats, daily; pasture.
C. O. Ellms	Massachusetts	Jersey Belle of Scituate	9		....	....	21.60	25.2	1880	
Miller & Sibley	Pennsylvania	Ida Marigold	5	4	244.5	a 8.83	21.60	a 25.2	1890	12 quarts ground oats, 8 quarts corn meal, 4 quarts oil meal, daily.
W. B. Matthews & Son	Tennessee	Selita J	4	1	211.8	a 10.20	21.60	a 25.2	1886	On grass alone.

T. L. Dodd	do	Dora 4th	8	4			21.51	25.1	1883	2 gallons bran, 1 gallon corn meal, daily; clover hay; pasture.
C. A. Sweet	New York	Daisy Harrison	8	9	303.3	7.09	21.51	25.1	1897	12 quarts bran, 9 quarts ground oats, 3 quarts corn meal, 3 quarts oil meal, daily; hay.
J. P. Bradbury	Ohio	Nora's Riotress 124870	4	6	343.3	6.27	21.51	25.1	1901	40 pounds bran, 40 pounds corn and cob meal, 24 pounds gluten feed, 10 pounds oil meal; hay; corn silage.
Miller & Sibley	Pennsylvania	Chromatess 51578	8	3	314.0	6.83	21.43	25.0	1895	6 quarts corn meal, 6 quarts ground oats, 4 quarts oil cake, daily; pasture.
M. Lothrop	Texas	Sister of Charity 62453	2	7	215.3	*a* 9.91	21.34	*a* 24.9	1890	
V. E. Fuller	Canada	Nymph of St. L. 12968	4	5	280.5	7.61	21.34	24.9	1885	9 quarts oats, 3 quarts bran, daily; mangels; ensilage; hay; pasture.
G. F. Miller	Kansas	Princess Chuck	6	4	242.0	*a* 8.82	21.34	*a* 24.9	1890	33⅓ quarts bran, 4¼ quarts corn chop, 5 quarts oil cake, 7 quarts oat chop, daily.
T. H. Malone	Tennessee	Prince's Christmas Gift	4	11	282.9	7.51	21.26	24.8	1896	22 pounds ground oats and corn, daily; pasture.
Jas. Crook	Alabama	Melrose's Perfection	8	11	252.5	*a* 8.42	21.26	*a* 24.8	1892	56 quarts bran and shorts, 56 quarts corn meal, 28 quarts cotton-seed meal, 50 pounds silage; hay; pasture.
L. L. Tozier	New York	Miss Bingo	8	7	255.3	*a* 8.33	21.26	*a* 24.8	1891	24 quarts grain daily (bran 100, ground corn 200, ground oats 300); bran slop; hay.
Boyce & Smell	Indiana	Sitanda's Rose	6	2	301.0	7.06	21.26	24.8	1895	4 quarts corn meal, 6 quarts bran, daily; pasture.
Bowmont Farms	Virginia	Lady Letty Lambert	5	9	324.5	6.55	21.26	24.8	1901	25 pounds silage, 3 pounds cotton-seed meal, 10 pounds bran, 6 pounds ground oats, 10 pounds hay, daily.
C. C. Crockett	Indiana	Hazen's Bess 7329	7	5	344.8	6.14	21.17	24.7	1883	45⅓ pounds corn meal, 28 pounds bran, 21 ears corn, 10 pounds cooked potatoes, 8 pounds beets, 8 pounds turnips; pasture.
Ayer & McKinney	Pennsylvania	Daisy Hinman 61537	5	2	296.3	7.12	21.09	24.6	1891	42 pounds oil meal, 42 pounds pea meal, 42 pounds corn meal, 42 pounds crushed oats, 50 pounds hay, 1½ bushels roots, 168 pounds ensilage.
Ehrick Parmly	New Jersey	Lily Scituate 12665	4	11	366.5	5.75	21.09	24.6	1885	13 pounds ground oats, 13 pounds middlings, 9 pounds corn meal, 7 pounds bran, daily; pasture.
Mrs. J. A. Cunningham	Massachusetts	Miss Milton 51851	9	11	241.4	*a* 8.74	21.09	*a* 24.6	1897	5 quarts shorts, 2 quarts ground oats, 2 quarts linseed, 16 pounds hay, 5 pounds corn fodder, daily.
Mrs. S. M. Shoemaker	Maryland	Westphalia 24384	5				21.09	24.6		
C. A. Sweet	New York	Hallie Rice	5	5	290.8	7.22	21.00	24.5	1895	12 quarts ground oats and corn, 12 quarts bran, 3 quarts oil meal, 1¼ quarts cotton-seed meal, daily; green corn, oats, peas.
W. M. Bell	Missouri	Eugenie Chouteau 6186	8		262.0	*a* 8.02	21.00	*a* 24.5	1885	16 quarts bran, 1 pint oil meal, daily; a few ears corn and pasture.
H. C. Schlegel	Indiana	Ethlo's Jean 71954	5	3	261.8	*a* 8.00	20.94	*a* 24.4	1896	47 quarts corn and cob meal, 47 quarts ground wheat, 47 quarts ground oats, 21 quarts oil meal; pasture.
F. W. Hart	Ohio	Lady K. of St. L. 112294	4		333.4	6.28	20.94	24.4	1898	8 pounds oil meal, 12 pounds corn meal, 10 pounds wheat bran, 25 pounds silage, 15 pounds clover hay, 15 pounds hay, daily.

---

[a] This yield, if normal butter, calls for an abnormally high percentage of butter fat in the milk, as shown in the calçulated percentages, and this renders the record open to question.

Weekly butter tests of purebred Jerseys above 23 pounds to July 15, 1902—Continued.

Owner.	State.	Name of cow.	Age.		Yield of milk.	Butter fat in milk (calculated).		Churned butter.	Year.	Feed.
			Ys.	*mos.*	*Pounds.*	*Per cent.*	*Pounds.*	*Pounds.*		
J. P. Bradbury	Ohio	St. Lambert's Riotress	4	11	337.5	6.21	20.94	24.4	1898	40 pounds corn meal, 40 pounds bran, 25 pounds wheat middlings, 16 pounds oil meal, cut clover; pasture.
T. S. Cooper	Pennsylvania	Wardalia 2d 33970	11	8	293.0	7.15	20.94	24.4	1897	24 quarts daily mixture (ground oats, middlings, bran, corn meal, and some pea meal), hay and silage.
M. A. McDonald	Indiana	Diploma's Comanca	4	2	294.1	7.12	20.94	24.4	1900	6 quarts corn meal, 6 quarts ground oats, 3 quarts bran, 1 quart oil meal, 20 pounds green corn fodder, daily; pasture.
M. E. Miller	Virginia	Count's Fillpail 30975	3	9	170.8	[a]12.20	20.83	[a]24.3	1888	6 pounds corn and oats, 4 pounds bran, 2 pounds flax meal, 1 pint condimental food, daily.
Jas. Crook	Alabama	Hugo's Joie de Vie 40372	6	9	243.5	[a]8.56	20.83	[a]24.3	1893	56 quarts bran and shorts, 42 quarts corn meal, 28 quarts cotton-seed meal, 30 pounds silage; hay; pasture.
M. E. Miller	Virginia	King's Princess 30948	6		232.3	[a]8.97	20.83	[a]24.3	1887	5 quarts corn meal, 4 quarts bran, 1 quart pea meal, daily.
J. P. Bradbury	Ohio	St. Lambert's Nora B.	4	1	321.7	6.48	20.83	24.3	1899	16 pounds oil meal, 30 pounds ground oats and corn, 16 pounds corn meal, 34 pounds wheat bran, 20 pounds wheat middlings; hay.
J. A. Cunningham	Massachusetts	Duchess of Bolton	4	8	212.5	[a]9.81	20.83	[a]24.3	1897	63½ pounds grain (corn meal, bran, ground oats, cotton-seed meal), 2 bushels sweet corn ears; pasture.
G. V. Saffarrans	Missouri	Bernice Hugo Pogis	10	6	328.0	6.35	20.83	24.3	1899	6 pounds bolted corn meal, 8 pounds bran, 4 pounds cotton-seed meal, daily; green cut corn; pasture.
C. E. Still	do	St. Helier's Regie 128707	2	8	245.4	[a]8.45	20.74	[a]24.2	1898	6 pounds corn meal, 8 pounds rolled oats, 4 pounds bran, 2 pounds oil meal, daily; hay.
J. P. Bradbury	Ohio	Oonan's Tormentra 154543	4	4	315.7	6.57	20.74	24.2	1901	40 pounds bran, 30 pounds wheat middlings, 36 pounds corn meal, 16 pounds oil meal, 126 pounds silage; hay; pasture.
R. F. Shannon	Pennsylvania	Oonan's Grace	4	8	258.8	[a]8.01	20.74	[a]24.2	1896	21 pounds daily grain (bran, corn, oil meal, cotton-seed meal, and 20 per cent pea meal); green fodder; hay.
C. L. Boyer	do	Sa 2d 112227	4	6	341.5	6.07	20.74	24.2	1899	1½ quarts cotton-seed meal, 1 quart oil meal, 5 quarts corn meal, 5 quarts ground oats, 6 quarts wheat bran, daily; corn fodder; hay.
J. P. Bradbury	Ohio	Letty Rioter	5	11	318.9	6.48	20.66	24.1	1895	40 pounds corn meal, 35 pounds ground oats, 35 pounds ground wheat; pasture.
F. C. Sayles	Rhode Island	Mother Hubbard	5	11	233.5	[a]8.85	20.66	[a]24.1	1885	4 quarts corn meal, 1 quart pea meal, 1½ quarts oil meal, 3 quarts shorts, 2 quarts middlings, 4 quarts crushed oats daily; hay.
Geo. Fox	Pennsylvania	Rita of Andalusia	8	4	421.3	4.90	20.66	24.1	1892	8 quarts corn meal, 6 quarts ground oats, daily; pasture.

Wm. Rolph	Canada	Pogis's Ida May	13	8	373.0	5.54	20.66	24.1	1900	30 pounds silage, 15 pounds peas and oats, 3 pounds oil cake, 3 pounds bran, 8 pounds carrots, daily; hay.
Matthews & Moore	Alabama	Alteration	4	10	264.2	7.79	20.57	24.0	1892	4 gallons corn meal, 2 gallons ground oats, 1 gallon bran, daily; cut green corn; pasture.
D. W. Bishop, jr.	Massachusetts	Regalia	6	10	285.9	7.20	20.57	24.0	1897	97 quarts oats, 42 quarts meal, 73 quarts bran, 140 pounds roots.
Wm. Rolph	Canada	Flower of Glen Rouge	3	1	262.0	7.82	20.49	23.9	1885	13⅓ quarts oats, 6⅔ quarts pease, 1 peck potatoes, daily; hay.
M. M. Gardner	Tennessee	Marchande	6	6	175.4	[a]11.68	20.49	[a]23.9	1895	10 pounds ground oats, 10 pounds corn, daily; corn fodder; hay.
T. S. Cooper	Pennsylvania	Pedro's Royal Princess	3	8	295.0	6.95	20.49	23.9	1894	26 quarts daily mixture (ground oats, bran, middlings, corn meal, and pea meal) daily; hay; pasture.
Mrs. H. Nicholson	Tennessee	Queen of Beauty	6	9	221.3	[a]9.26	20.49	[a]23.9	1888	4½ pounds corn meal, 2 pounds cotton-seed meal, 1 pound pea meal, 9 pounds bran, daily.
Miller & Sibley	Pennsylvania	Golden Dewdrop	5	4	269.5	7.57	20.40	23.8	1896	63 quarts ground oats, 42 quarts corn meal, 21 quarts bran, 21 quarts oil cake, ½ bushel carrots.
J. P. Bradbury	Ohio	Sasanda's Tormentris	5		312.4	6.53	20.40	23.8	1900	38 pounds corn meal, 38 pounds gluten meal, 30 pounds bran, 14 pounds linseed meal; silage; hay.
E. G. Toel, jr.	New York	Eulalia Bismark	7	10	235.1	[a]8.68	20.40	[a]23.8	1901	18 pounds grain (bran, 40; ground oats, 40; gluten, 40; oil meal, 20; cotton-seed meal 10 pounds), 6 pounds hay, 6 quarts roots, daily.
H. B. Robertson	Ohio	Exile's Briar Coquette	3	11	332.8	6.13	20.40	23.8	1902	40 pounds bran, 24 pounds gluten meal, 46 pounds corn meal, 16 pounds oil meal; silage; hay.
Wm. Rolph	Ontario	Nellie of St. Lambert	7	9	318.0	6.42	20.40	23.8	1897	22 quarts chopped pease and oats, 4 quarts bran, 4 pounds oil cake, daily; hay.
G. E. Peer	New York	Phillis of St. Lambert	7	5	320.0	6.38	20.40	23.8	1896	4 quarts bran, 6 quarts oats and pease, 6 quarts corn meal, 2 quarts oil meal, 1 bushel cut clover, one-half bushel cut roots, daily.
H. C. Taylor	Wisconsin	Tapestry 56607	7	2	313.3	6.51	20.40	23.8	1896	35 pounds oats, 35 pounds bran, 42 pounds corn, 21 pounds oil meal; pasture.
C. A. Sweet	New York	Calculus 75185	4	11	347.8	5.84	20.31	23.7	1895	12 quarts corn and oats, 12 quarts wheat bran, 3 quarts oil meal, daily; green corn; pasture.
Jas. Crook	Alabama	Miss Nellie Parker	5	4	240.8	[a]8.43	20.31	[a]23.7	1889	70 quarts corn meal, 42 quarts bran, 14 quarts pea meal, 14 quarts cotton-seed meal, 105 pounds silage; hay; pasture.
Wm. Rolph	Ontario	Pomona's Ida of St. L.	12	2	363.1	5.59	20.31	23.7	1900	8 quarts peas and oats, 2 pounds oil cake, 4 quarts bran, daily; hay.
Chas. Lautz	New York	Chief's Charella	4	7	213.0	[a]9.54	20.31	[a]23.7	1893	14 pounds oil meal, 245 pounds corn refuse, 224 pounds silage, 28 pounds malt sprouts, 28 pounds middlings, 28 pounds clover hay.
M. M. Gardner	Tennessee	Cherokee Rose	3	0	227.0	[a]8.91	20.23	[a]23.6	1885	18 quarts ground oats and corn, daily; pasture.
H. B. Robertson	Ohio	King's Riotress Nora	3	8	330.2	6.13	20.23	23.6	1902	40 pounds bran, 40 pounds corn meal, 36 pounds wheat middlings, 21 pounds oil meal; silage; hay.

[a] This yield, if normal butter, calls for an abnormally high percentage of butter fat in the milk, as shown in the calculated percentages, and this renders the record open to question.

Weekly butter tests of purebred Jerseys above 23 pounds to July 15, 1902—Continued.

Owner.	State.	Name of cow.	Age.		Yield of milk.	Butter fat in milk (calculated).		Churned butter.	Year.	Feed.
			Ys.	*mos.*	*Pounds.*	*Per cent.*	*Pounds.*	*Pounds.*		
Bowmont Farms	Virginia	St. Lambert's Lucy	8	10	353.8	5.72	20.23	23.6	1902	40 pounds corn and cowpea silage, 10 pounds clover hay, 2 pounds cotton-seed meal, 6 pounds corn meal, 8 pounds bran, daily.
M. C. Campbell	Tennessee	Miss Roonalda	5	11	257.9	7.84	20.23	23.6	1899	112 quarts corn and oats, 28 quarts bran, 7 quarts cotton-seed meal; pasture.
J. C. Kiplinger & Co.	Ohio	Lady Panalphrex	3	3	....	....	20.23	23.6	1885	2 pounds oil meal, 8 pounds oat meal, 6 pounds corn meal, 8 pounds shorts, daily; pasture.
C. A. Sweet	New York	Mary Idagold	3	11	343.3	5.89	20.23	23.6	1896	11 quarts ground oats, 7 quarts corn meal, 3 quarts oil meal, 6 quarts bran, daily; hay; pasture.
T. R. Proctor	.....do	Proctor's Alma Dolores	4	11	270.0	7.50	20.23	23.6	1892	1 quart linseed meal, 4 quarts corn meal, 4 quarts ground oats, 6 quarts bran, 16 quarts beets, 15 pounds silage, 10 pounds hay, daily.
J. S. Campbell	Pennsylvania	Ida May of Clearview	3	9	291.8	6.90	20.14	23.5	1902	5 pounds corn meal, 5 pounds crushed oats, 5 pounds bran, 6 pounds oil meal, 30 pounds silage, pea hay, 2 ounces salt, daily.
F. B. Keeney	New York	Adelpha Marigold	5	4	343.0	5.87	20.14	23.5	1901	2⅛ pounds oil meal, 2⅛ pounds cotton-seed meal, 4⅛ pounds bran, 4⅛ pounds ground oats, 1 pound corn meal, daily; silage; hay.
J. P. Bradbury	Ohio	St. Lambert's Emsie	4	7	339.6	5.93	20.14	23.5	1901	40 pounds bran, 40 pounds corn meal, 26 pounds wheat middlings, 16 pounds oil meal; silage; hay.
E. A. Berauer	Indiana	Bridal Rose	7	2	316.3	6.37	20.14	23.5	1895	12 quarts ground oats and corn, 4 quarts bran and middlings, 3 quarts cotton-seed meal, 1 quart oil meal, 1 quart oats, daily; pasture.
Mrs. Kate M. Busick	.....do	Maud of Mapleview	5	11	209.6	*a* 9.61	20.14	*a* 23.5	1892	6 pounds bran, 2 pounds cotton-seed meal, 4 pounds corn meal, 3 pounds oil meal, 2 ounces salt, 30 pounds silage, daily; 126 pounds hay.
Michael Hilgert	Missouri	King's June Beauty	7	6	288.8	6.95	20.06	23.4	1899	6 pounds corn meal, 6 pounds oat meal, 3 pounds oil meal, daily; hay; pasture.
Davis & Carll	New York	Massena's Trust	4	9	209.5	*a* 9.58	20.06	*a* 23.4	1899	75 pounds gluten feed, 90 pounds brewer's grains, 210 pounds silage; hay and cornstalks.
J. G. Dutcher	.....do	Xyst	4	5	342.4	5.86	20.06	23.4	1898	10 pounds ground oats, 10 pounds bran, 12 pounds corn meal, daily.
J. B. Wallace	Kentucky	Euphorbia	6	1	131.8	*a* 15.22	20.06	*a* 23.4	1886	6 quarts corn meal, 6 quarts shelled oats, 3 quarts oil meal, 3 quarts bran, daily.
J. P. Bradbury	Ohio	Exile's Lady Matilda	3		319.4	6.28	20.06	23.4	1901	40 pounds bran, 40 pounds corn and cob meal, 24 pounds wheat middlings, 16 pounds oil meal; 30 pounds silage per day.
Do	.....do	King's Rioter Letty	3	4	318.1	6.31	20.06	23.4	1901	40 pounds bran, 40 pounds corn meal, 24 pounds gluten feed, 30 pounds wheat middlings, 18 pounds oil meal; silage and hay.

Do	....do	St. Lambert's Rinora	3	9	319.8	6.27	20.06	23.4	1899	36 pounds corn meal, 32 pounds bran, 20 pounds oil meal, 30 pounds wheat middlings; hay and pasture.
Ayer & McKinney	Pennsylvania	Matilda of Meridale	3	7	307.8	6.52	20.06	23.4	1892	
Miller & Sibley	....do	Hilda 2d	9	4	289.0	6.91	19.97	23.3	1884	12 pounds corn meal, 8 pounds ground oats, 4 pounds middlings, 8 pounds oil meal, daily; hay.
H. A. Huntington	Connecticut	Louisa of Riverside	5	1	220.5	*a* 9.06	19.97	*a* 23.3	1895	103 pounds provender, 40½ pounds cotton-seed meal, hay.
L. W. and H. W. Simonds.	Ontario	Oaklands Nora	4	7	153.0	*a* 13.05	19.97	*a* 23.3	1885	5 quarts pea meal, 3 quarts ground oats, 1 quart bran daily; pasture.
T. B. Kibler	Ohio	Ashantee's Daisy of D	8	3	345.8	5.77	19.97	23.3	1899	60 quarts corn meal, 70 quarts bran, 20 quarts oil meal; clover and hay.
J. P. Bradbury	....do	Harry's Oonan Fancy	3	10	305.7	6.53	19.97	23.3	1899	40 pounds bran, 22 pounds wheat middlings, 20 pounds oil meal, 30 pounds corn meal; hay; pasture.
Do	....do	Oonan's Ula	4	11	313.3	6.37	19.97	23.3	1900	18 pounds oil meal, 40 pounds bran, 40 pounds corn meal, 36 pounds middlings; hay and silage.
J. S. Clark	New Jersey	Clem Pogis	9		290.3	6.88	19.97	23.3	1897	4 quarts corn meal, 5 quarts ground oats, 1½ quarts cotton-seed meal, 1½ quarts oil meal, daily; clover hay.
Mrs. M. A. Rubush	Mississippi	Ruby Jenks 3d	5	2	289.6	6.90	19.97	23.3	1896	Slops, sweet potatoes, peas, oats, cotton-seed meal, corn meal, bran, cotton-seed hulls, shorts, hay.
D. F. Appleton	Massachusetts	Golightly	7	1	275.7	7.24	19.97	23.3	1889	8 pounds corn meal, 9 pounds ground oats, 9 pounds middlings, daily.
Wm. Weis	Wisconsin	Koffee's Lady Pogis	7	7	253.7	7.87	19.97	23.3	1897	21 pounds bran, 21 pounds corn meal, 14 pounds oats, 14 pounds oil meal; hay.
D. F. Appleton	Massachusetts	Lady Golddust 2d	6		....	....	19.97	23.3	1887	5 quarts corn meal, 8 quarts oat meal, 2 quarts pea meal, 1 quart oil meal, 5 quarts middlings, daily.
J. P. Bradbury	Ohio	Exile's Maud Coquette	4	1	324.4	6.16	19.97	23.3	1901	40 pounds bran, 36 pounds wheat middlings, 36 pounds corn meal, 16 pounds oil meal, 150 pounds silage; hay.
Do	....do	Khedive's Ula	3	10	316.7	6.31	19.97	23.3	1901	42 pounds bran, 32 pounds wheat middlings, 40 pounds corn meal, 20 pounds oil meal, and pasture.
H. G. McMillan	Iowa	Trustee's Czarina	4	4	313.3	6.37	19.97	23.3	1899	Ground corn and oats, mill stuff, clover hay, and pasture.
J. P. Bradbury	Ohio	Ida's Fawnette	5	6	301.1	6.61	19.89	23.2	1899	36 pounds bran, 24 pounds wheat middlings, 28 pounds corn meal, 18 pounds oil meal; hay and silage.
Mattie A. Rubush	Mississippi	Ruby Jenks 2d	5	10	290.3	6.85	19.89	23.2	1895	6 quarts bran, 3 quarts cotton-seed meal, 12 quarts cotton-seed hulls, 2 quarts oats, daily; sweet potatoes; peas and bran in slops; hay.

a This yield, if normal butter, calls for an abnormally high percentage of butter fat in the milk, as shown in the calculated percentages, and this renders the record open to question

Weekly butter tests of purebred Jerseys above 23 pounds to July 15, 1902—Continued.

Owner.	State.	Name of cow.	Age.		Yield of milk.	Butter fat in milk (calculated).		Churned butter.	Year.	Feed.
			Yrs.	*mos.*	*Pounds.*	*Per cent.*	*Pounds.*	*Pounds.*		
P. J. Cogswell	New York	Rachel Spencer	6	11	402.8	4.94	19.89	23.2	1895	33 quarts bran, 48½ quarts ground oats, 22½ quarts oil meal, 19 quarts corn meal, 19 quarts cotton-seed meal, 19 quarts pea meal, 42 quarts roots, 105 pounds hay.
J. H. Walker	Massachusetts	Beauty Dee	4	3	221.5	[a]8.98	19.89	[a]23.2	1886	28 quarts corn meal, 28 quarts shorts; pasture.
J. E. Robbins	Indiana	Nettie's New Year	6	2	372.9	5.33	19.89	23.2	1897	8 pounds bran, 10 pounds corn and oats, 2½ pounds oil meal, 2½ pounds cotton-seed meal, 28 pounds silage, daily; hay.
C. A. Sweet	New York	Pride's Olga 4th	3	11	368.8	5.39	19.89	23.2	1897	9 quarts bran, 9 quarts ground oats, 6 quarts corn meal, 3 quarts oil meal, daily; green corn fodder.
J. P. Bradbury	Ohio	Hugo Riotress Elf	3	1	322.3	6.17	19.89	23.2	1901	40 pounds bran, 38 pounds wheat middlings, 36 pounds corn meal, 16 pounds oil meal; hay; pasture.
Do	do	Lady Matilda St. L	5	11	326.5	6.09	19.89	23.2	1901	44 pounds bran, 36 pounds wheat middlings, 36 pounds corn meal, 16 pounds oil meal; pasture.
Do	do	Rachel Fancy	4	7	316.1	6.29	19.89	23.2	1902	40 pounds bran, 36 pounds wheat middlings, 40 pounds corn meal, 16 pounds oil meal; hay; pasture.
Do	do	Riotress of St. L	4	1	312.2	6.37	19.89	23.2	1899	40 pounds bran, 20 pounds wheat middlings, 43 pounds corn meal, 14 pounds oil meal; hay; silage.
Do	do	Tormentor's Mistletoe	4	9	312.8	6.36	19.89	23.2	1899	24 pounds bran, 22 pounds wheat middlings, 24 pounds corn meal, 16 pounds oil meal, 30 pounds corn and oats; hay; pasture.
Miller & Sibley	Pennsylvania	Pomona's Violetta Pogis	8	8	267.3	7.44	19.89	23.2	1897	119 quarts ground oats, 77 quarts corn meal, 28 quarts ground oil cake, 140 pounds sugar beets; hay.
Do	do	Ida Twinkle	4	11	266.3	7.47	19.89	23.2	1890	6 quarts wheat middlings, 12 quarts ground oats, 9 quarts corn meal, daily; 1 bucket oat meal gruel at midnight.
G. M. Jewett	Maryland	Little Torment	3	1	224.5	[a]8.86	19.89	[a]23.2	1885	6 quarts ground corn and oats, 1 pint oil meal daily; hay.
Miller & Sibley	Pennsylvania	Metaphysics	3	1	256.0	7.74	19.80	23.1	1897	21 quarts wheat bran, 63 quarts ground oats, 21 quarts oil meal, 42 quarts corn meal, 21 quarts oil cake, 21 quarts malt, 140 pounds sugar beets.
L. H. Turner	New York	Alphea Rajah	10	11	247.4	[a]8.00	19.80	[a]23.1	1893	42 quarts mixture (corn ⅖, oats ⅖, peas ⅕), 28 quarts bran, 14 quarts cotton-seed meal; hay; pasture.
T. R. Proctor	do	Nutley Dolores	8	3	234.0	[a]8.46	19.80	[a]23.1	1890	12 quarts corn meal, 6 quarts oil meal, 12 quarts ground oats, daily.

J. P. Bradbury	Ohio	Emsie's Riotress	5	11	321.7	6.16	19.80	23.1	1901	40 pounds gluten feed, 48 pounds bran, 44 pounds corn and cob meal, 14 pounds oil meal; cut corn stover.
Do	do	Riotress Nonnie	4	6	324.6	6.10	19.80	23.1	1901	38 pounds bran, 30 pounds wheat middlings, 30 pounds corn meal, 16 pounds oil meal, 18 pounds gluten feed; hay; pasture.
Do	do	King's Euphorbia	3	7	318.2	6.22	19.80	23.1	1900	46 pounds bran, 34 pounds wheat middlings, 40 pounds corn meal, 14 pounds oil meal, 70 pounds clover hay; corn fodder; pasture.
Do	do	Signal's Mistletoe	4	1	309.0	6.41	19.80	23.1	1900	44 pounds bran, 30 pounds wheat middlings, 40 pounds corn meal, 18 pounds oil meal, 100 pounds hay, 100 pounds corn fodder.
James S. Stoll	Kentucky	Sue Gallagher	4	3	188.7	[a]10.5	19.80	[a]23.1	1885	10 quarts corn meal, 5 quarts oil cake, 5 quarts bran, 10 quarts ground oats, daily; pasture.
J. P. Bradbury	Ohio	Ida B. Matilda	5	5	320.2	6.18	19.80	23.1	1901	40 pounds bran, 30 pounds wheat middlings, 26 pounds corn meal, 14 pounds oil meal; hay; pasture.
Estate of Campbell Brown.	Tennessee	Callie Nan 2d	4	6	302.0	6.56	19.80	23.1	1893	196 pounds ground oats; pasture.
J. H. Martin	New York	Diana Victor Pogis	4	11	364.0	5.44	19.80	23.1	1897	95 pounds corn meal, 28 pounds wheat middlings, 28 pounds bran, 25 pounds oil meal; 1½ bushels silage per day; hay.
W. S. Lincoln	Massachusetts	Moss Rose of Willow Farm	12	0	228.3	[a]8.67	19.80	[a]23.1	1885	6 quarts corn meal, 6 quarts shorts daily; hay.
W. E. Oates	Mississippi	Romping Miss	6	4	295.0	6.71	19.80	23.1	1893	56 quarts corn meal, 28 quarts cotton-seed meal, 70 quarts crushed oats, 21 quarts ground peas; pasture.
C. A. Sweet	New York	Tuäa St. Lambert	6	3	306.3	6.46	19.80	23.1	1895	12 quarts ground corn and oats, 12 quarts bran, 3 quarts oil meal daily; hay.
Estate of F. Billings	Vermont	Garella	3	1	301.5	6.54	19.71	23.0	1892	7 pounds corn meal, 14 pounds bran, 14 pounds gluten meal, 7 pounds oil meal, 56 pounds hay, 56 pounds corn fodder, 210 pounds roots.
F. W. Tanner	Massachusetts	Maud Lee	9	1	....	....	19.71	23.0	1879	4½ pounds corn meal, daily; pasture.
P. J. Cogswell	New York	Paola Stoke Pogis	5	4	274.0	7.19	19.71	23.0	1891	35 pounds corn meal, 21 pounds pea meal, 21 pounds oil meal, 42 pounds bran, 21 pounds fine feed, 14 pounds ground oats, 42 pounds roots, 84 pounds silage; hay.
S. T. Howard	Texas	Winksette	3	9	276.5	7.13	19.71	23.0	1896	70 pounds mixture (cotton-seed meal ¼, bran ¼, crushed oats ¼, corn meal ¼); Kaffir corn stalks.

---

[a] This yield, if normal butter, calls for an abnormally high percentage of butter fat in the milk, as shown in the calculated percentages, and this renders the record open to question.

The records of Jersey cows yielding less than 23 pounds of butter in seven days are too numerous to be given in detail. They are therefore summarized in the following table:

	Number of cows.
Yielding between 22 and 23 pounds butter in seven days	103
Yielding between 21 and 22 pounds butter in seven days	154
Yielding between 20 and 21 pounds butter in seven days	182
Yielding between 19 and 20 pounds butter in seven days	206
Yielding between 18 and 19 pounds butter in seven days	396
Yielding between 17 and 18 pounds butter in seven days	532
Yielding between 16 and 17 pounds butter in seven days	759
Yielding between 15 and 16 pounds butter in seven days	1,005
Yielding between 14 and 15 pounds butter in seven days	1,253
Total yielding between 14 and 23 pounds butter in seven days	3,104

Official [a] *seven-day milk and butter tests of registered Jersey cows.*

Owner.	State.	Name of cow.	Age.		Year of test.	Yield of milk.	Butter fat in milk (calculated).[b]		Yield of butter.
			Y.	*m.*		*Pounds.*	*Per ct.*	*Pounds.*	*Pounds.*
Mrs. S. M. Shoemaker	Md	Princess 2d	8	0	1885	299.5	[c]13.39	40.10	[c]46.78
Andrew Banks	Md	Oxford Kate	6	0	1885	248.5	[c]13.71	34.07	[c]39.75
V. E. Fuller	Ontario.	Mary Anne of St. L.	5	6	1884	245.0	[c]12.86	31.51	[c]36.77
H. A. Huntington	Conn	Oonan of Riverside	4	7	1895	237.0	[c]12.36	29.30	[c]34.19
J. A. McEwen	Tenn	Ethleel 2d	2	8	1885	155.7	[c]17.03	26.52	[c]30.94
V. E. Fuller	Ontario.	Ida of St. Lambert	6	7	1884	290.5	[c] 8.90	25.85	[c]30.16
Matthews, Moore & Humes.	Ala	Signal's Lily Flagg	8	4	1892	189.4	[c]12.32	23.33	[c]27.22
V. E. Fuller	Ontario.	Mermaid of St. L	5	2	1884	307.0	7.22	22.15	25.84
Watts & Seth	Md	Value 2d	7	4	1883	327.0	6.60	21.58	25.18
F. Bronson	Conn	Miss Belle	10	5	1886	276.0	7.01	19.34	22.56
V. E. Fuller	Ontario.	Naiad of St. Lambert.	4	4	1884	267.0	7.11	18.99	22.15
Columbia Jersey Cattle Co.	Tenn	Landseer's Fancy	10	0	1883	123.6	[c]15.22	18.81	[c]21.94
A. B. Darling	N. J	Bomba	4	0	1882	205.4	[c]9.07	18.62	[c]21.72
V. E. Fuller	Ontario.	Niobe of St. Lambert.	4	0	1884	280.8	6.59	18.50	21.58
Miller & Sibley	Pa	Matilda 4th	5	3	1885	336.0	5.49	18.45	21.53
Thomas H. Malone	Tenn	Mamelle	2	2	1885	256.1	7.20	18.45	21.52
F. Bronson	Conn	Hilda D	9	4	1885	249.5	7.27	18.14	21.16
L. W. & H. W. Simonds	Ontario.	Rioter Pink of Berlin.	4	3	1884	290.3	5.87	17.04	19.88
John Boyd	Ill	Alpheon's Belle	4	2	1888	217.8	7.75	16.88	19.69
F. Bronson	Conn	Evelina of Verna	6	2	1885	264.8	6.36	16.85	19.66
Columbia Jersey Cattle Co.	Tenn	Fair Lady	6	7	1883	232.8	6.63	15.43	18.00
C. Brown	Tenn	Su Lu	7	8	1883	241.7	6.36	15.38	17.94
E. Worth	Pa	Lydia Darrach			1883	238.5	6.43	15.33	17.88
T. H. Malone	Tenn	Tette	2	7	1885	188.3	7.91	14.89	17.38
Jas. Stillman	N. Y	Cetewayo's Lily	5	5	1886	261.3	5.58	14.57	17.00
F. Bronson	Conn	Hilda A 3d	4	10	1886	246.9	5.92	14.62	17.06
C. Brown	Tenn	Carrie Lena 3d	2	2	1885	197.0	7.07	13.93	16.25
F. Bronson	Conn	Eltekah	2	2	1886	213.7	6.52	13.93	16.25
F. Billings	Vt	Euphonia	7	0	1885	261.4	5.26	13.74	16.03
C. N. Gilbert	Mass	Yokun's Princess	9	11	1895	300.6	4.46	13.41	15.64
P. J. Cogswell	N. Y	Otta of St. Lambert	5	9	1893	219.3	6.08	13.33	15.55
J. S. Rogers	N. J	Pet of Rose Lawn	5	1	1885	246.6	5.40	13.31	15.53
C. Brown	Tenn	Miss Dora Deane	3	11	1886	230.6	5.69	13.12	15.31
Do	Tenn	Mary Jane of Belle Vue.	9	0	1885	238.6	5.44	12.97	15.13
Jas. Stillman	N. Y	Leila of Briarcliff	2	6	1886	199.4	6.30	12.56	14.66
Columbia Jersey Cattle Co.	Tenn	Cottage Lass	6	9	1883	217.8	5.71	12.43	14.50
Jas. Stillman	N. Y	Khelula	4	10	1886	184.2	6.71	12.35	14.41
C. Wellington	Mass	Percie	3	0	1884	261.3	4.73	12.35	14.41
Jas. Stillman	N. Y	Cocotte	9	10	1886	239.9	5.14	12.32	14.38
W. B. Montgomery	Miss	Gilt Edge			1884				14.22
P. J. Cogswell	N. Y	Bronzie of St. Lambert	5	4	1892	234.5	5.16	12.11	14.13

---

[a] The word "official" used in this connection designates tests made under the supervision of committees appointed by the president of the American Jersey Cattle Club.

[b] Calculated on basis of 85.7 per cent fat in butter.

[c] This yield, if normal butter, calls for an abnormally high percentage of butter fat in the milk, as shown in the calculated percentages, and this renders the record open to question.

Confirmed [a] seven-day milk and butter tests of registered Jersey cows.

Owner.	State.	Name of cow.	Age.		Year of test.	Yield of milk.	Fat in milk.	Yield of butter fat.	Yield of butter (85 per cent fat).
			Y.	*m.*		*Pounds.*	*Per ct.*	*Pounds.*	*Pounds.*
H. S. Redfield	N. Y	Countess Matilda	6	8	1898	270.2	6.28	16.96	19.96
C. I. Hood	Mass	Figgis 76106	11	0	1902	293.4	5.49	16.10	18.94
Mrs. M. L. Sayre	Ky	Bluster's Pip	6	8	1901	307.4	5.21	16.02	18.84
C. I. Hood	Mass	Betsona's Khedive le Gros.	10	10	1902	282.0	5.50	15.51	18.25
Mrs. S. Kinhead	Ky	Dollie's Valentine	4	1	1898	273.6	5,54	15.16	17.84
Purdue University	Ind	Early Morn	9	11	1897	248.4	6.10	15.15	17.83
C. I. Hood	Mass	Nora of Argyle	5	7	1902	276.4	5.30	14.66	17.25
C. I. Hudson	N. Y	Ida's Rose of St. L	7	2	1898	280.1	5.15	14.42	16.97
Mrs. J. W. Sayre	Ky	Virginia Taylor	3	2	1898	278.4	5.14	14.32	16.84
Mrs. M. L. Sayre	Ky	Oonette	3	3	1900	310.8	4.58	14.24	16.75
Berry Bros	Ky	Butter Jean	3	9	1899	290.5	4.82	14.01	16.48
W. W. McGruder	Miss	Patton's Buttercup	6	8	1899	204.0	6.54	13.34	15.69
W. F. Galbreath	Ky	Princess Marie G	5	8	1897	251.9	5.27	13.28	15.63
J. W. Rodes	Ky	Miss Bluster	2	5	1897	210.3	6.27	13.19	15.52
J. M. Downing	Ky	Oonan's Silverlocks	5	1	1902	215.6	6.05	13.04	15.34
T. C. Coons	Ky	Aethra K 104562	5	2	1898	213.4	6.02	12.85	15.12
Mrs. M. L. Sayre	Ky	Tormandy's Lass	2	3	1900	265.7	4.82	12.81	15.07
C. I. Hood	Mass	Elsie Wolcott	11	1	1902	258.1	4.96	12.80	15.06
Do	Mass	Sophie 10th of H. F	6	2	1902	278.1	4.58	12.75	15.00
J. M. Downing	Ky	Daisy Goff	7	3	1902	236.7	5.37	12.72	14.97
Ky. Agr'l Exp. Sta	Ky	Justa Pogis	3	8	1892	262.7	4.84	12.71	14.95
W. T. Honaker	Ky	Hattie Darnall	6	8	1901	221.0	5.72	12.65	14.88
C. I. Hood	Mass	Oonan 8th of H. F	5	0	1902	211.7	5.95	12.59	14.81
Mrs. J. W. Sayre	Ky	Lydia D 2d	5	6	1898	246.0	5.11	12.56	14.78
Vt. Agr'l Exp. Sta	Vt	Sadie's Delight	5	5	1893	299.3	4.19	12.54	14.75
Charles Lesher	Ky	Orie's Vexer's Gem	4	6	1902	244.8	5.10	12.48	14.69
Ky. Agr'l Exp. Sta	Ky	Tormentor's Maid's Daisy.	7	9	1900	212.7	5.87	12.48	14.69
E. A. Farra	Ky	Imperial Pansy Pogis.	9	9	1897	283.1	4.41	12.48	14.68
T. R. Webber	Ky	Nanoonan	4	2	1898	276.5	4.48	12.39	14.58
Ky. Agr'l Exp. Sta	Ky	Justa Pogis 2d	3	11	1898	256.5	4.83	12.38	14.57
Mrs. J. W. Sayre	Ky	Gladys Yakna	4	7	1899	282.3	4.38	12.36	14.54
J. W. Rodes	Ky	Oona B	2	2	1900	223.1	5.46	12.19	14.34
Berry Bros	Ky	Lady Mata	5	6	1901	235.0	5.17	12.15	14.29
C. I. Hood	Mass	Hood Farm Belle	7	3	1902	260.3	4.66	12.13	14.27
J. C. Robert	Miss	Daisy Bell C	7	6	1899	253.3	4.79	12.12	14.26
W. O. Page	Miss	Annie Kate	7	10	1899	241.0	4.98	12.00	14.12
Mrs. M. L. Sayre	Ky	Lydia Davis	4	1	1901	236.1	5.07	11.98	14.09
Ky. Agr'l Exp. Sta	Ky	Double-Oon	8	2	1899	206.2	5.78	11.92	14.03

---

[a] The word "confirmed" as used in this connection designates tests made by the Babcock method of ascertaining the butter fat supervised by an appointee of the club or by the officials of any State, provincial, or National experiment station.

The records in the following table, like those on pages 150–160, were taken from the reports of the American Jersey Cattle Club, having been accepted by the club on affidavits and certificates. The percentages and amounts of butter fat have been calculated from the yields of milk and butter as recorded.

Milk and butter-fat tests of purebred Jersey cows for periods longer than seven days.

Owner.	State.	Name of cow.	Age of cow.		Year of test.	Duration of test.	Yield of milk.	Butter fat in milk (calculated).[a]		Yield of butter.
			Yr.	*mo.*		*Days.*	*Lbs.*	*Per ct.*	*Lbs.*	*Lbs.*
E. L. Briggs	Iowa	Lady Josephine	....		1882	8	....	....	....	19.1
C. I. Hood	Mass.	Sophie Hudson	7	2	1898	10	468.1	5.13	24.00	28.0
Do	Mass.	Brown Bessie 18th of H. F.	4	3	1900	10	343.8	5.66	19.46	22.7
Do	Mass.	Sophona	6	2	1897	10	354.8	5.39	19.11	22.3
Do	Mass.	Oonan 4th of H. F	3	4	1900	10	352.6	5.40	19.03	22.2
T. C. Murphy	Kans	Lady Oxford	3	8	1878	10	310.0	6.11	18.94	22.1
C. I. Hood	Mass.	Brown Bessie 20th of H. F.	5	0	1901	10	355.6	5.26	18.69	21.8
Do	Mass.	Pedro's Rosaline	3	5	1901	10	378.2	4.87	18.43	21.5
Do	Mass.	Sophie 4th of H. F.	5	3	1901	10	342.5	5.31	18.17	21.2
Z.C.Luse & Son	Iowa	Miss Blanche	8	3	1879	10	357.0	4.95	17.66	20.6
G. D. Coleman	Pa	Birdie 2611	....		....	10	....	....	17.14	20.0
C. I. Hood	Mass.	Minty 2d of Hood Farm.	3	11	1898	11	362.3	5.63	20.40	23.8
W. C. McCallister.	Pa	Lulu Pedro 71902	4	1	1895	13	611.5	4.39	26.83	31.3
Miller & Sibley	Pa	Fable 62520	6	1	1894	14	611.0	7.35	44.92	52.4
Wm. Rolph	Ont	Pogis' Ida May 50063	13	8	1900	14	743.4	5.43	40.38	47.1
M. M. Gardner	Tenn	Tomassee 76875	4	0	1895	14	582.5	6.11	35.57	41.5
Do	Tenn	Ida's Dream 50070	7	9	1895	14	570.4	6.09	34.71	40.5
Mrs. S. E. K. Hudson.	N. Y.	Ida's Rose of St. L. 71555.	5	1	1896	14	607.0	5.68	34.46	40.2
M. M. Gardner	Tenn	Soconee 76895	6	2	1898	14	466.0	7.38	34.37	40.1
Chas. Lantz	N. Y.	King's Nana 111706	4	2	1899	14	459.3	7.47	34.29	40.0
W. H. O. Goist.	Ohio	Mary Jane of Cedar Grove.	4	5	1900	14	479.4	7.15	34.29	40.0
Ayer & McKinney.	Pa	Beauty of Meridale 114744.	4	7	1899	14	596.3	5.72	34.12	39.8
Austin & Probert.	Mich	Kaleta of Florence 117316.	5	1	1899	14	506.4	6.72	34.03	39.7
C. A. Sweet	N. Y.	Pogis' Puin 2d's Lady 131607.	4	11	1902	14	588.8	5.77	33.95	39.6
Do	N. Y.	Olga Ann 130317	3	10	1901	14	535.4	6.34	33.94	39.6
Mrs. A. M. Hallock.	Ohio	Rowena of St. Lambert.	6	9	1896	14	527.8	6.40	33.78	39.4
Biltmore F'ms	N. C	Pilot's Becky 158692	5	6	1901	14	623.5	5.39	33.60	39.2
W. H. Silverthorn.	Ohio	Esme's Eulalie 88509	9	10	1902	14	736.0	4.57	33.60	39.2
F. B. Keeney	N. Y.	Coomassie's Palma 111609.	5	4	1900	14	507.5	6.61	33.52	39.1
H. F. Probert	Mich	Carola's Crown Princess.	7	2	1899	14	636.4	5.27	33.52	39.1
C. I. Hood	Mass.	Figgis 76106	10	7	1902	14	649.4	5.10	33.09	38.6
Do	Mass.	Oonan 4th of H. F. 134745.	4	7	1901	14	621.9	5.32	33.09	38.6
Chas. Lantz	N. Y.	Lady Rubea 98731	5	11	1899	14	480.8	6.85	32.91	38.4
J. P. Bradbury	Ohio	King of St. L.'s Armida 150615.	3	9	1901	14	489.9	6.67	32.66	38.1
M. M. Gardner	Tenn	Moyane C, 86492	3	6	1896	14	433.5	7.51	32.57	38.0
Do	Tenn	Miss Gracie 86495	3	0	1895	14	414.8	7.81	32.40	37.8
Estate Campbell Brown.	Tenn	Tormendova 74885	4	6	1895	14	389.0	8.31	32.31	37.7
M. M. Gardner	Tenn	Emma Landseer 3d 110513.	5	8	1895	14	572.9	5.55	31.80	37.1
C. I. Hood	Mass.	Tormentor's Lass 59832.	10	1	1899	14	565.1	5.39	30.43	35.5
R. F. Shannon	Pa	Una of St. Lambert 80117.	7	10	1900	14	560.4	5.40	30.26	35.3
F. B. Keeney	N. Y.	Slafter's Pride 113750	6	7	1900	14	419.5	7.17	30.09	35.1
H. F. Probert	Mich	Blossom of Florence 164108.	3	10	1899	14	434.4	6.85	29.74	34.7
C. I. Hood	Mass.	Stalactite 2d 92017	7	0	1899	14	508.2	5.79	29.40	34.3
E. Stupfell	Iowa	Orphan Mary Anne 2d 131754.	4	10	1900	14	555.3	5.26	29.23	34.1
C. A. Sweet	N. Y.	Cream Princess 3d 128688.	3	8	1900	14	482.5	6.04	29.14	34.0
C. P. Marple & Sons.	Pa	Valhalla 5300	6	0	1882	14	....	....	29.14	34.0
C. I. Hood	Mass.	Lois Emerson 78529	7	2	1899	14	588.6	4.90	28.89	33.7
Thomas Friant	Mich	Signala Marcelina 86674.	7	9	1900	14	541.1	5.30	28.71	33.5
Mrs. M. A. Rubash.	Miss	Lucile Jenks 138403	2	0	1899	14	418.3	6.84	28.63	33.4
C. I. Hood	Mass.	Pansy's Thoughts	6	10	1897	14	503.9	5.61	28.29	33.0
G. E. Scott	Ohio	Pa Pogis 72500	5	11	1897	14	577.6	4.90	28.29	33.0
C. A. Sweet	N. Y	Hugo Princess 2d 139086.	3	1	1901	14	458.1	6.06	27.77	32.4

[a] Calculated on the basis of 85.7 per cent fat in butter.

Milk and butter-fat tests of purebred Jersey cows for periods longer than seven days—Con.

Owner.	State.	Name of cow.	Age of cow.		Year of test.	Duration of test.	Yield of milk.	Butter fat in milk (calculated).		Yield of butter.
			Yr.	*mo.*		*Days.*	*Lbs.*	*Per ct.*	*Lbs.*	*Lbs.*
F. B. Keeney	N. Y	Miss March 61083	12	10	1901	14	504.0	5.51	27.77	32.4
C. I. Hood	Mass	Hood Farm Caltharine 143960.	2	1	1900	14	501.9	5.50	27.60	32.2
J. L. Cooper	Tenn	Ooney C. 131371	2	7	1899	14	439.0	6.29	27.60	32.2
Mrs. A. M. Hallock.	Ohio	St. Lambert's Pride 53742.	7	7	1894	14	339.0	8.09	27.43	32.0
J. L. Cooper	Tenn	Mattie Tormentor 62841.	6	7	1895	14	476.0	5.73	27.26	31.8
C. I. Hood	Mass	Koffee's Winnie 113001	5	0	1900	14	661.6	4.08	27.00	31.5
R. F. Shannon	Pa	Kitty Kilduff 101055	4	5	1899	14	498.0	5.42	27.00	31.5
P. J. Cogswell	N. Y	Exile's Harriet 100716.	2	0	1895	14	448.3	6.02	27.00	31.5
Mrs. M. A. Hallock.	Ohio	Rioter's Esse 81901	5	5	1895	14	323.5	8.32	26.92	31.4
P. J. Cogswell	N. Y	Exile's Nina 40522	8	9	1895	14	469.5	5.73	26.92	31.4
R. F. Shannon	Pa	Ruby Glenruby 101056.	4	3	1899	14	484.5	5.54	26.83	31.3
H. F. Probert	Mich	Dagmar of Florence 120863.	6	4	1899	14	539.3	4.96	26.75	31.2
C. I. Hood	Mass	Duke's Jessie 2d 118778	6	4	1901	14	591.8	4.52	26.75	31.2
Mrs. A. M. Hallock.	Ohio	Silver Hair 4th 60449	5	7	1895	14	559.3	4.75	26.57	31.0
C. I. Hood	Mass	Rose's Oonan 135935	5	4	1902	14	556.6	4.72	26.72	30.7
D. G. Whiting	Cal	Lady Myra of Riolawn	7	6	1902	14	528.0	4.87	25.71	30.0
J. E. Gray & Son	Ohio	Sweet Lily of Meridale	3	3	1896	14	487.8	5.09	24.85	29.0
Mrs. J. W. Sayre	Ky	Lydia D. 2d 97860 (confirmed).	5	6	1898	14	505.9	4.91	24.85	29.0
J. R. Wright	Miss	Light Foot Pogis 57531	8	7	1897	14	459.9	5.39	24.77	28.9
C. I. Hudson	N. Y	Ethel of Shelburne 46285.	9	5	1897	14	523.9	4.71	24.69	28.8
F. B. Keeney	N. Y	Mojave 143130	3	3	1902	14	499.5	4.89	24.43	28.5
S. McKeen	Ind	Rubano's Sydonia 54706.	12	4	1899	14	454.0	5.36	24.34	28.4
Mrs. M. A. Hallock.	Ohio	Clover of St. Lambert 60945.	5	0	1894	15	465.8	6.96	32.40	37.8
S. M. Burnham.	Conn	King's Trust 18946	3	0	1884	15	....	....	31.20	36.4
Mrs. M. A. Hallock.	Ohio	Rush of St. Lambert 61234.	7	6	1897	15	545.0	5.47	29.83	34.8
DuBois Bros	Colo	Hebe Milicent 146784.	3	2	1902	16	577.1	6.57	37.89	44.2
Mrs. M. A. Hallock.	Ohio	Même 2d 49946	7	5	1894	16	576.8	5.88	33.94	39.6
Do	Ohio	Même 34921	8	3	1893	16	453.5	7.05	31.97	37.3
Do	Ohio	Exile's Lady Star 63943	5	3	1894	16	517.8	5.88	30.43	35.5
C. I. Hood	Mass	Koffee's Winnie 113001	5	0	1900	17	799.8	4.07	32.57	38.0
C. A. Sweet	N. Y	Inez of Riverside 51781	11	0	1897	21	1,309.3	4.65	60.86	71.0
Austin & Probert.	Mich	Kaleta of Florence 117316.	5	1	1899	21	746.3	6.65	49.63	57.9
DuBois Bros	Colo	Hebe Milicent 146784.	3	2	1902	21	758.5	6.53	49.51	57.8
H. F. Probert	Mich	Carola's Crown Princess 90321.	7	3	1899	21	951.4	5.06	48.17	56.2
R. A. Sibley	Mass	Nutley's Tones 122809.	6	9	1902	21	955.9	5.01	47.92	55.9
C. A. Sweet	N. Y	Myrtlise 64006	5	2	1893	21	546.0	8.63	47.14	55.0
Do	N. Y	Little Ria 139089	3	4	1902	21	838.0	5.39	45.17	52.7
H. F. Probert	Mich	Blossom of Florence 164108.	3	10	1899	21	658.1	6.51	42.86	50.0
C. I. Hood	Mass	Hood Farm Caltharine 143960.	2	1	1900	21	741.1	5.48	40.63	47.4
P. Raab	Ind	March Ida Pogis 101182	4	11	1898	21	479.5	8.46	40.55	47.3
E. B. C. Hambley.	N. C	Xarama 76887	3	0	1895	21	699.1	5.60	39.17	45.7
H. F. Probert	Mich	Dagmar of Florence 120863.	6	5	1899	21	815.2	4.76	38.83	45.3
J. H. Murray	Mich	Zuby Maree 135697	3	3	1901	21	670.5	5.43	36.43	42.5
Estate F. Billings.[a]	Vt	Lily Garfield 79819	2	0	1893	21	562.7	5.71	32.14	37.5
A. O. Auten[a]	Ind	Jeannette of Pittsford 73185.	3	0	1893	21	501.8	....	....	30.0
Richardson Bros.[a]	Iowa	Campania 88475	3	0	1893	21	556.7	....	....	28.1
Estate F. Billings.[a]	Vt	Woodstock Mystery 77746.	2	2	1893	21	388.6	....	....	26.2
E. W. Fairman[a]	Wis	Iola F 85529	2	2	1893	21	465.3	....	....	25.2
Richardson Bros.[a]	Iowa	Elturia 80701	2	11	1893	21	483.4	....	....	24.1
Estate F. Billings.[a]	Vt	Woodstock Lady	2	2	1893	21	398.1	....	....	23.0
R. A. Sibley	N. Y	Magyarland's Temisia	4	0	1901	24	903.0	4.40	48.77	56.9
J. W. Rodes	Ky	Miss Bluster 108231	2	5	1897	24	705.8	6.19	43.67	50.95
Mrs. A. M. Hallock.	Ohio	Golden Gem of St. L. 81167.	3	9	1894	24	629.5	6.71	42.26	49.3

[a] Chicago test, 1893.

Milk and butter-fat tests of purebred Jersey cows for periods longer than seven days—Con.

Owner.	State.	Name of cow.	Age of cow.		Year of test.	Duration of test.	Yield of milk.	Butter fat in milk (calculated).		Yield of butter.
			Yr.	*mo.*		*Days.*	*Lbs.*	*Per ct.*	*Lbs.*	*Lbs.*
Berry Bros	Ky	Butter Jean 129811	3	9	1899	28	1,133.9	4.96	56.23	65.6
F. B. Keeney	N. Y	Luna K 140380	2	4	1901	28	1,032.5	5.08	52.46	61.2
W. F. Galbreath	Ky	Princess Marie G 120390 (confirmed).	5	8	1897	28	1,007.6	5.19	52.27	60.98
Mrs. A. M. Hallock.	Ohio	Silver Hair 4th 60449	5	7	1895	28	1,118.5	4.38	51.86	60.5
A. D. McBride	N. Y	Exile's Belle	4	11	1891	[a]30	902.5	11.61	104.9	122.4
C. Brown	Tenn	Soeurette	7	9	1895	30	1,024.0	8.12	83.1	97.0
Davis & Carll	N. Y	Massena's Trust	4	10	1900	30	897.5	8.72	78.3	91.3
M. M. Gardner	Tenn	Denise's Ida	7	1	1895	30	1,243.4	6.23	77.5	90.4
C. I. Hood	Mass	Costa Rica	11	10	1896	30	1,225.6	6.14	75.3	87.9
W. A. Ponder	Tex	Alteration's Goldie	6	3	1901	30	1,359.0	5.50	74.7	87.2
Biltmore farms	N. C	Chloe of Biltmore	7	11	1901	30	1,606.5	4.48	72.0	84.0
H. S. Redfield	N. Y	Countess Matilda	6	7	1898	30	1,123.9	6.35	71.1	82.9
Du Bois Bros	Colo	Hebe Milicent	3	2	1902	30	1,087.4	6.44	70.0	81.7
J. H. Walker	Mass	Insie's C. of A's Gazelle	10	4	1901	30	982.7	7.05	69.3	80.8
Austin & Probert.	Mich	Kaleta of Florence	5	1	1899	30	1,032.2	6.56	67.7	79.0
M. H. Olin	N. Y	Esther Reid of St. L	6	11	1899	30	1,550.6	4.20	65.1	75.9
H. F. Probert	Mich	Carola's Crown Princess.	7	3	1899	30	1,346.8	4.83	65.0	75.8
Biltmore farms	N. C	Golden Kola	4	0	1899	30	1,334.0	4.72	62.9	73.4
H. F. Probert	Mich	Blossom of Florence	3	10	1899	30	946.5	6.37	60.3	70.3
Austin & Probert.	Mich	Vida's Crown Princess	4	9	1896	30	969.8	5.99	58.1	67.8
Do	Mich	Maud's Crown Princess.	5	0	1896	30	999.2	5.74	57.3	66.8
E. C. Newton	Ohio	Princess Helene of St. L.	5	10	1894	30	1,079.6	5.27	56.9	66.4
C. Lautz	N. Y	Rosella of Bay View	7	9	1898	30	942.0	6.02	56.7	66.1
Austin & Probert.	Mich	Lily's Crown Princess	4	4	1895	30	879.3	6.31	55.5	64.8
E. C. Newton	Ohio	Leonetta H	4	9	1893	30	814.8	6.54	53.3	62.2
Do	Ohio	Olga H	5	9	1893	30	841.8	6.30	53.0	61.8
H. Newton	Mass	Abbie Z	6	1	1876	30	1,406.0	3.73	52.4	61.1
H. F. Probert	Mich	Dagmar of Florence	6	5	1899	30	1,146.4	4.57	52.4	61.1
Ayer & McKinney.	Pa	Daisy Hinman	5	3	1891	31	1,308.9	6.68	87.4	102.0
Do	Pa	Coquette of Glen Rouge.	9	11	1891	31	1,014.1	7.92	80.0	93.3
C. I. Hood	Mass	Costa Rica	11	10	1896	31	1,264.6	6.14	77.7	90.7
A. B. Darling	N. J	Bomba	4	0	1882	31	....	....	....	89.9
G. W. Sisson	N. Y	Zélie de Lussan	7	1	1893	31	1,416.5	5.14	74.4	86.8
Jo. C. Elstner	La	Busy Melrose	5	3	1892	31	1,311.0	5.57	73.0	85.2
C. I. Hood	Mass	Figgis 76106	10	7	1902	31	1,421.4	4.98	70.8	82.6
C. Delano	Ohio	Bartlea	4	1	1899	31	1,285.9	5.41	69.5	81.1
G. W. Sisson	N. Y	Haidee Signal	6	11	1894	31	1,264.3	5.40	68.3	79.7
Mrs. E. M. Jones	Ontario	Miss Satanella	4	11	1899	31	1,164.3	5.76	67.0	78.2
Ayer & McKinney.	Pa	Priscilla Pogis	3	9	1890	31	1,042.8	6.40	66.7	77.8
G. W. Sisson	N. Y	Nienchen	6	5	1894	31	987.8	6.41	63.3	73.8
Do	N. Y	Pogis Oonan	9	6	1894	31	1,128.0	5.57	62.8	73.3
———	....	Couch's Lily	5	0	1874	31	....	....	....	71.0
Mrs. A. M. Hallock.	Ohio	Clover of St. Lambert	5	1	1897	31	1,028.3	5.85	60.2	70.2
J. D. Wing	N. Y	Oak Leaf	....		....	....	....	....	....	63.3
Mrs. E. M. Jones	Ontario	Topsy of Malone	....		....	....	790.5	6.05	47.8	55.8
W. F. Galbreath	Ky	Princess Marie B	5	8	1897	32	1,139.7	6.79	59.6	69.5
H. C. Schlegel	Ind	Hilda Glenn	5	2	1896	35	1,181.8	8.81	104.1	121.5
P. J. Cogswell	N. Y	Paola Stoke Pogis	5	4	1891	35	1,385.0	6.78	93.9	109.6
Do	N. Y	Rachel Spencer	6	11	1895	35	2,004.6	4.52	90.6	105.7
C. A. Sweet	N. Y	Mona Caird	5	2	1895	42	2,054.8	5.32	109.2	127.4
Mrs. A. M. Hallock.	Ohio	Rowena of St. L	6	8	1896	42	1,467.8	6.32	92.7	108.2
Do	Ohio	Clover of St. L	5	1	1894	42	1,169.4	6.92	80.9	94.4
C. P. Chapman	Ill	Lady Mel 2d	5	4	1875	61	....	....	....	183.0
Mrs. E. M. Jones	Ontario	Massena	15	0	1891	61	1,822.5	6.84	124.7	145.5
F. S. Peer	N. Y	Mollie Garfield	6	5	1882	62	1,877.7	7.44	139.7	163.0
F. B. Keeney	N. Y	Adelpha Marigold	5	3	1901	84	3,864.5	5.86	226.6	264.4
H. S. Redfield	N. Y	Countess Matilda (Also see appendix.)	6	6	1898	90	3,171.0	5.96	188.9	220.4
G. M. Jewett	Md	Little Torment	3	4	1885	91	2,752.4	7.07	194.7	227.1
P. P. Paddock	N. Y	Massena	9	0	1885	102	1,499.6	9.27	139.0	162.0
Miller & Sibley	Pa	Matilda 4th	5	0	1896	125	....	....	....	279.5
Shelby Kinkead.	Ky	Dollie's Valentine (confirmed).	4	0	1898	147	5,428.6	5.46	296.3	345.7
G. W. Sisson	N. Y	Zélie de Lussan	7	6	1893	182	6,864.5	5.62	386.0	450.3
H. S. Redfield	N. Y	Countess Matilda	6	4	1898	315	9,088.1	5.92	538.1	627.7

---

[a] See Appendix for Chicago thirty-day test.

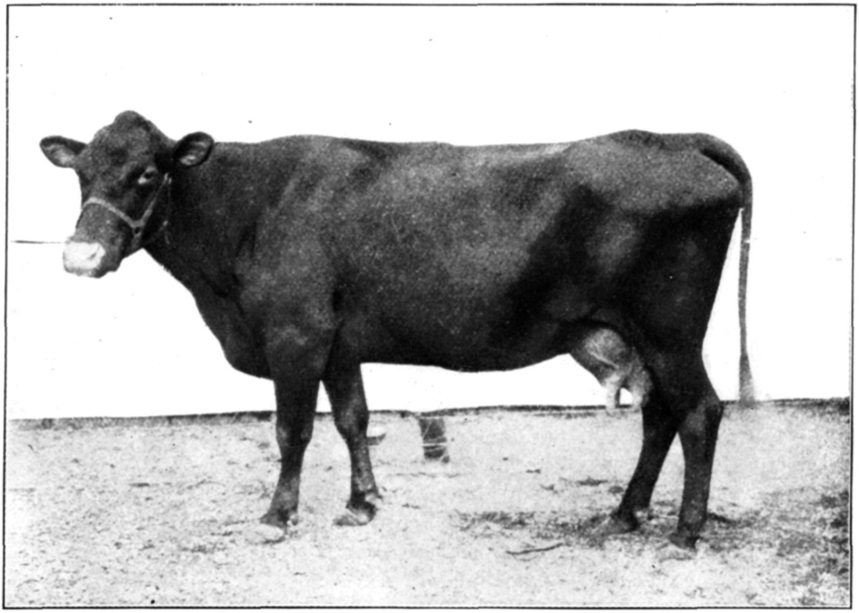


FIG. 1.—MAYFLOWER 2ND 8025 (A12). PUREBRED RED POLLED.

Second in the model dairy herd test at the Pan-American Exposition, 1901. Milk record for 6 months 6,161 lbs., which made 323 lbs. butter; record for 12 months 10,458 lbs. milk, 547 lbs. butter.

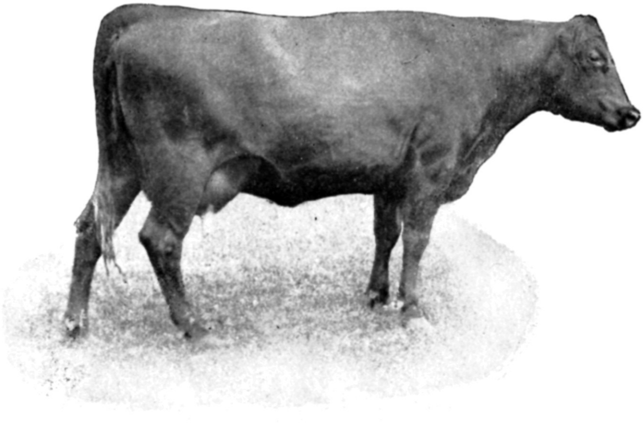


FIG. 2.—CHLOE 10097 (T1). PUREBRED RED POLLED.

Second prize in general class and in farmer's cow class International, 1903. Official test for 330 days 7,924 lbs. milk, 336.58 lbs. fat.

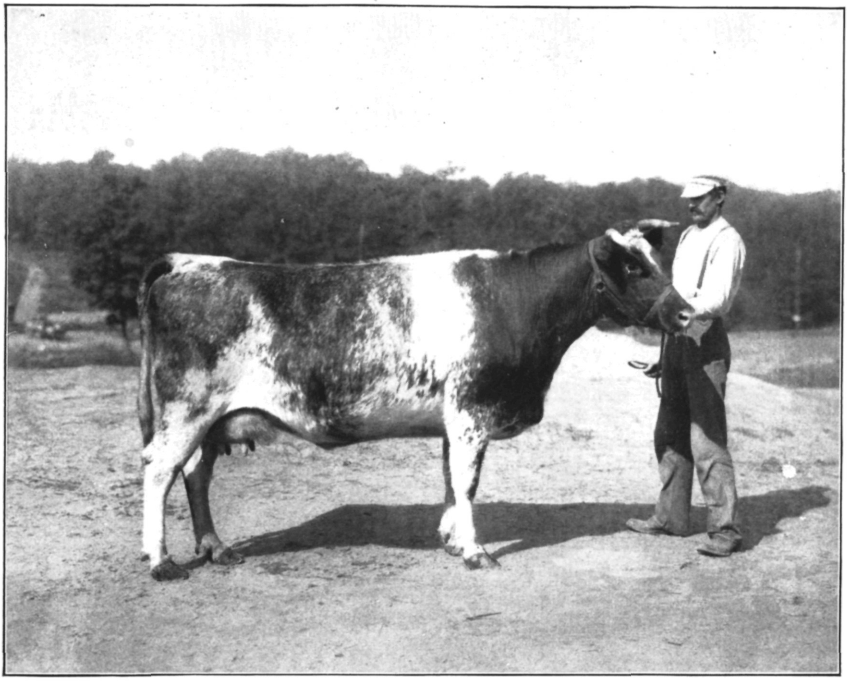


FIG. 1.—ROWENA 2ND. PUREBRED SHORTHORN.

Champion dual-purpose cow, class C, World's Fair dairy demonstration, St. Louis, 1904. Record for 120 days 4,053 lbs. milk, 4.3 per cent fat, 201.13 lbs. estimated butter: gained 139 lbs. weight.

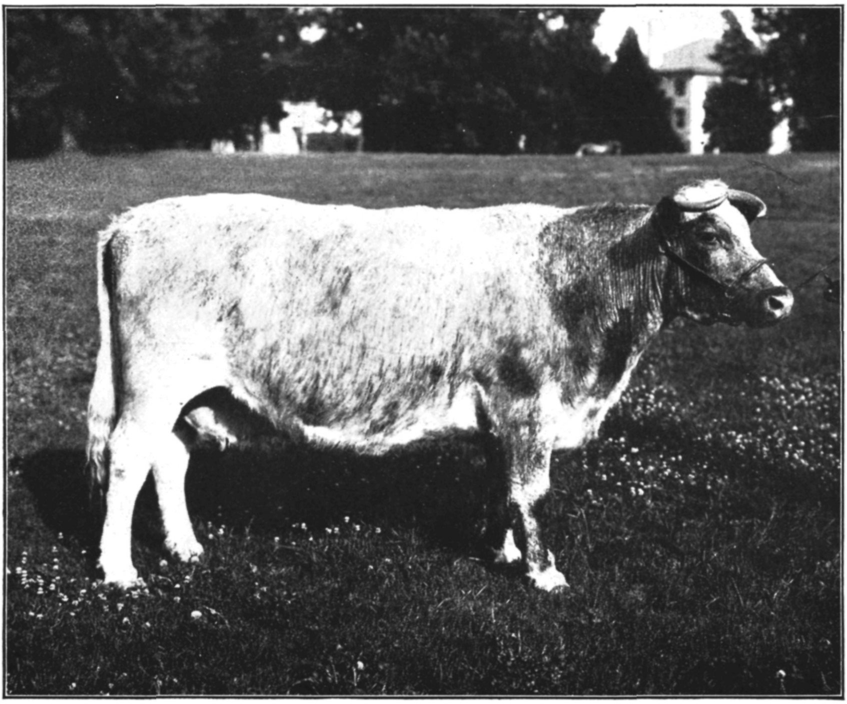
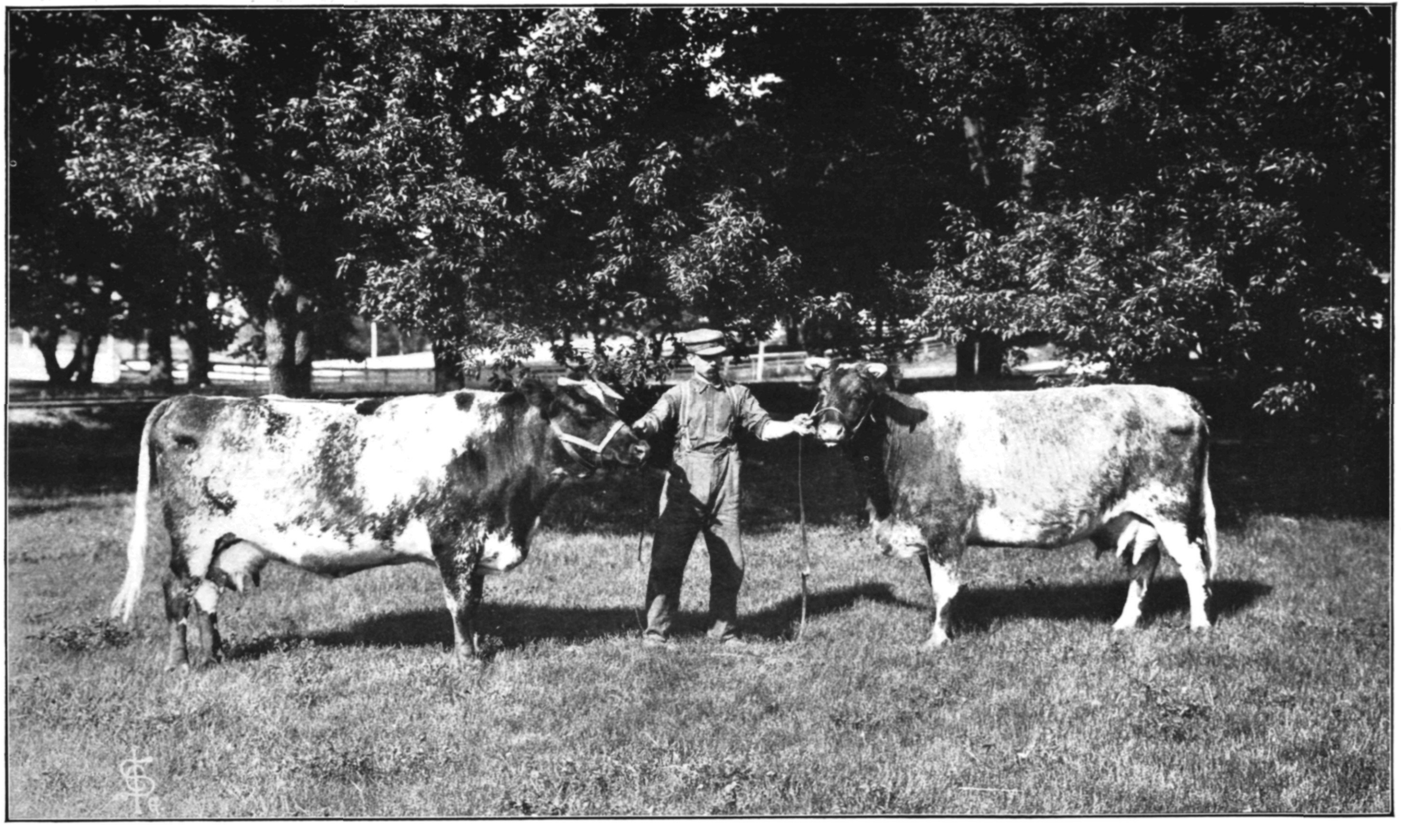


FIG. 2.—COLLEGE MOORE. PUREBRED SHORTHORN.

Record for 13 months 474 lbs. butter; record for 4 milking periods 1,695.8 lbs. butter.



IMP. ROSEMARY AND IMP. NONPAREIL. PUREBRED SHORTHORNS.

Showing good types of dairy Shorthorns.

RECORDS OF PUREBRED RED POLLED COWS.

Milk and butter-fat records of purebred Red Poll cows for short periods.

Name of owner.	State.	Name of cow.	Age.	Number days record.	Milk.	Fat.	Butter fat.
			Yrs.		*Pounds.*	*Per cent.*	*Pounds.*
J. McL. Smith	Ohio	Chloe	8	7	201.7	....	8.41
Do	....	Glee 4927	......	1	34.34	4.71	1.62
V. T. Hills	....	Popsey 3d	6	1	57.4	3.77	2.16
Do	....	Average of 7 cows	......	1	37.92	....	1.55
Mr. Sanderson	....	....	4	1	35.35	3.56	1.26
Do	....	....	3	1	25.25	....	.92
——	....	Lady of Tittleshall	......	....	40.84	4.43	1.81

RECORDS OF PUREBRED SHORTHORN COWS.

Milk and butter records of purebred Shorthorn cows for short periods.

Owner.	State.	Name of cow.	Time.	Yield of milk.	Yield of butter.
			Days.	*Pounds.*	*Pounds.*
Kansas Agricultural College	Kans	College Moore	7	258.5	13.6
....	....	Reward of Nora's Duke	7	252.0	13.5
D. Sheehan & Sons	Iowa	Nora	15	663.1	....
Flora V. Spencer	N. Y	Betsy 7th	15	483.0	....
W. W. Walmire	Kans	Genevieve	15	685.2	....
Flora V. Spencer	N. Y	Kitty Clay 7th	15	437.8	....
W. Miller	Iowa	Bashful 2d	15	658.0	....
J. S. Thornton & Son	Pa	Fancy 11th	15	429.1	....
T. Ballantyne & Son	Ontario	Marchioness 6th	15	540.5	....
Emory Cobb	Ill	Butterfly 3d	15	499.8	....
I. U. Wetmore	Ill	Emma Abbott 3d	15	522.1	....
A. Morse	N. Y	Iza	15	446.3	....
Daniel Reed	Ontario	Waterloo Daisy	15	714.4	....
E. B. Meriwether & Son	Ill	Orange Girl	15	433.4	....
Flora V. Spencer	N. Y	Fillpail 9th	15	367.7	....
A. Morse	N. Y	Azalia	15	495.0	....
Flora V. Spencer	N. Y	Fillpail 8th	15	307.2	....
Christian Hintz	Ohio	Plumwood Belle	15	441.0	....
D. Sheehan & Sons	Iowa	Belle Price	15	527.9	....
A. Morse	N. Y	Maid of Oxford 2d	15	442.5	....
Reform School	Pa	Rosa	15	439.7	....
Flora V. Spencer	N. Y	Lucy Ann	15	468.0	....
A. Gibson	Minn	Oxford Bloom 8th	15	407.9	....
J. F. Davis	Ontario	Royal Duchess	15	466.7	....
A. Morse	N. Y	Maid of Oxford 3d	15	449.5	....
J. M. Herr	Iowa	Christata	15	440.9	....
B. B. Overmeyer	Ohio	Mauds Antartic	15	420.0	....
J. K. Innes	Pa	Kitty Clay 4th	30	1,592.9	62.2
W. Miller	Iowa	Bashful 2d	30	971.3	47.5
J. K. Innes	Pa	Kitty Clay 3d	30	1,230.6	50.2
Daniel Reed	Ontario	Waterloo Daisy	30	1,169.1	47.8
D. Sheehan & Sons	Iowa	Nora	30	1,037.2	47.2
		Lady Bright	30	1,048.8	44.5
W. W. Walmire	Kans	Genevieve	30	1,071.1	43.9
Flora V. Spencer	N. Y	Betsy 7th	30	948.8	41.8
		Kitty Clay 7th	30	831.2	42.4
		Kitty Clay 5th	30	926.9	41.1
D. Sheehan & Sons	Iowa	Belle Price	30	1,099.6	42.2
		Vervain	30	1,093.6	40.5
		Fair Maid of Hullet	30	884.9	39.1
Flora V. Spencer	N. Y	Lucy Ann	30	788.7	36.4
Reform School	Pa	Rosa	30	923.6	35.97
J. K. Innes	Pa	Fillpail 7th	30	1,229.0	....
....	....	Reward of Nora's Duke	30	1,145.5	53.1

THE PUREBRED HOLSTEIN COW SHADYBROOK GERBEN.

This cow was the leader for all breeds at the St. Louis dairy contest in total production of milk and butter fat. She was but twelve days in milk when the test began. During the one hundred and twenty days she produced 8,101.7 pounds of milk, containing 282.601 pounds of fat and 620.534 pounds of solids not fat. The estimated butter yield was 330.361 pounds.

The percentage of fat in the milk of Shadybrook Gerben was 3.48 and of solids not fat 7.65; the percentage of total solids 11.13. Her grain ration averaged 22.1 pounds per day, and the hay and other coarse food 64.22 pounds per day. The average cost of her feed per day was 30.47 cents. Her milk yield averaged 67.5 pounds per day for the whole period of the test, she having started with a yield of 80 pounds per day. Her fat yield averaged 2.355 pounds per day, and her butter yield 2.753 pounds. It required 24.52 pounds of her milk to make 1 pound of butter. The cost of feed in 1 pound of butter was 11.07 cents.

THE PUREBRED JERSEY COW LORETTA D.

Loretta D. is a cow of exceedingly strong constitution, and weighs 998 pounds. She is owned by the W. S. Ladd estate, Oregon. She was the leader in the dairy-cow demonstration at the Louisiana Purchase Exposition for demonstrating the economic production of milk and butter fat. At the beginning of the test she was 7 years and 8 months old, and had been seventy-one days in milk. During the one hundred and twenty days of the test she produced 5,802.7 pounds of milk, containing 280.161 pounds of butter fat and 522.895 pounds of solids not fat. The fat was officially estimated to equal 330.03 pounds of butter. From the date of her freshening to the end of the St. Louis test, April 10 to October 13, 1904 (one hundred and eighty-one days), she produced 9,214.7 pounds of milk, containing 416.64 pounds of fat, or a daily average of 49.3 pounds of milk, 2.23 pounds of fat, and 2.62 pounds of butter.

The milk of this cow during the St. Louis test contained on the average 4.82 per cent of fat and 9.01 per cent of other solids, making the per cent of total solids 13.83. She was fed an average of 17.49 pounds grain and 36.93 pounds hay and silage per day at a cost of 26.65 cents per day. It required 17.58 pounds of her milk to make a pound of estimated butter. She averaged in butter value 68.75 cents per day and in net profit for production of butter 42.09 cents per day. She averaged in milk value 83.11 cents per day and in net profit for production of milk 56.45 cents per day.

In March, 1902, when 5 years and 5 months old, she was put on a fat test for one year, during which she produced 9,241.1 pounds of milk, containing 516 pounds fat, verified by a representative of the Wisconsin Experiment Station. She has an official seven-day record of 17.24 pounds butter fat.

CONCLUSIONS.

The discussions presented in the preceding pages may be briefly summarized as follows:

The scales and Babcock test are essential requisites for every true dairyman.

One dairyman's cows may produce twice the yield and return double the profit of those of another with the same soil and the same market, simply because he uses greater intelligence in his business.

Records are valuable because they assist dairymen to distinguish the good from the poor cows, assist the feeder in preparing rations economically, give warning of the approach of sickness, and give inspiration to those who watch carefully for improvement.

Accurate and continuous records are necessary for best results. Examples show the impracticability of trying to determine the profitable cows by mere guesswork. One dairyman found the cow he had picked out for best to be fifth on his merit list when actual records were taken.

It is desirable that records of dairy animals include not only the dairy performance, but a concise history and description of each animal, and a record, at least of approximate accuracy, of the cost of the food of every cow, so that the economy of production may be determined.

The time and expense required in keeping records is small compared with their value. In some instances one minute per cow at each milking, or two minutes a day, has been found sufficient to record the weight of the milk and take the sample. On this basis, when milk is weighed and tested every seventh week, as is customary with some dairymen, only about one hour and thirty-eight minutes would be required yearly for each cow tested. With this amount of time expended a reasonably accurate record can be secured of every cow in the herd.

While daily records are best, various investigators have recommended methods of estimating the yearly production from a few weighings and tests, a number of which have proved practical and reasonably accurate. For example: The Wisconsin station recommends weighing and sampling the milk one day each week during the year; the Illinois station suggests weighing and sampling each cow's milk for fourteen consecutive milkings every seventh week; the Vermont station recommends that when only two tests of each cow's milk are to be made during the same lactation period in case of fall-fresh cows, the first test should be made eight to ten weeks after calving and the second test five and one-half to seven months; the Maryland station decides, after an exhaustive study of this question, that the seventh month in the lactation period would be the best to test the cow when only one test per year is made; when combinations of two tests are to be made at different periods, this station found that the third and eighth months would be best, and for a combination of tests during three months, the third, sixth, and eighth.

The average production of the dairy cows in the country is hardly up to the profit line. The average yield per cow in the year 1900 was reported to be 3,646 pounds of milk and 155 pounds of butter. Every dairyman should determine upon a standard for his herd which will realize him a good profit and work up to it by keeping a record of the quantity and quality of the milk product and the cost of production, and by systematically weeding out the herd. Examples are numerous where dairymen are doing this successfully.

The answers to 600 circulars sent to dairymen indicated that only a very small proportion made any attempt to keep records of their cows. Of the 200 replies received, 25 per cent stated that they did not keep records, and it is believed that a large proportion of the 400 who did not respond had no records to offer. A still smaller proportion was able to give the cost of keeping their cows.

Reports from dairymen as to the kind of cows kept indicated that where they selected a special breed they were more careful in the breeding and management of their cows, and secured larger yields and greater profits than where there was a mixture and no single breed predominated.

Dairymen who were careful to supply an abundance of nutrients to their cows, even though they had to buy concentrated feeding stuffs to balance the ration, received the greatest profit for money expended for food. Occasionally a farmer who raised such crops as clover, alfalfa, field peas, and cowpeas was able to balance his ration without the purchase of protein feeds.

Too often the carbohydrates in the rations were far in excess of what the cow could utilize in milk production, and this resulted in waste. In some cases cornstalks were fed to the stock dry and uncut, only a part being eaten. Where protein crops were grown to supplement the pasture, an increased milk yield and greater profit were secured. It was also shown that the silo assisted materially in reducing the cost of feed.

In some instances low records were due in part to the barns not being sufficiently warm, this resulting in a waste of nutrients. Too often dairymen provided no system of ventilation other than windows, holes in the floor over the stables, and hay chutes. Sunshine as well as pure air was frequently lacking. These conditions all have their influence upon milk production.

Good dairymen as well as poor ones seem to be in clusters. The influence of a few progressive dairymen who study their business and become intelligent in regard to it is shown in some communities. In others the example of those who do not read and study dairy methods is followed, and they are all ignorant together, and as a result they receive very little if any profit from their cows.

One reason for low records and lack of progress is that many dairymen do not avail themselves of the education in dairying and agriculture so cheaply offered to them by the dairy and agricultural papers, farmers' institutes, farmers' reading courses, experiment stations, agricultural colleges, etc. It has been clearly demonstrated that dairymen must get above average methods and average conditions to attain success, and must use business methods and avail themselves of the latest and best knowledge.

Cows producing good records are not confined to any one breed or locality or section of the country. The individuality of the cow and the care and treatment she receives have more influence than natural conditions or peculiar characteristics of the soil.

A cow's dairy performance can not be fairly judged from her record for a single year. Dairy cows have their "off years," and this must be considered when cows having poor records are being dropped from the herd. If this fact is not borne in mind, there is danger of selling the best cows.

Cows producing 5,000 pounds of milk and 200 pounds of butter annually are within the reach of every painstaking dairyman. A lower yield than this in most sections of the country leaves little or no margin for profit. It should be the constant aim of the dairyman to raise his standard.

Many dairymen make the mistake of keeping more cows than they can properly shelter and feed. It is more profitable to begin with a few well cared for than with a large number poorly fed and poorly sheltered. As a rule dairymen have cows enough in number, but their yield is too low. To increase the profit the product must be increased.

The fundamental steps to be taken in improving dairy herds may be stated as follows:

(1) Take advantage of variation. While the tendency of nearly all cows raised is to become average cows, a number fall below and a few reach a yield of 500, 600, or even 700 pounds of butter.

(2) Those above the average should be carefully selected and bred with care and judgment.

(3) While the test must be used to detect variation and make selections, it is needed particularly to test the progeny, to determine whether the good qualities of the parent have been perpetuated, and to see if any improvement in the offspring has been made.

(4) Food, care, and management are of the highest importance. Having been carefully selected and having stood the test, the cows must be well fed and cared for if their good qualities are to be retained and improved.

APPENDIX.

BREED TESTS—COMPARATIVE YIELDS OF MILK AND BUTTER FAT.

The following statements, taken from the Report of the Wisconsin Experiment Station for 1903, show the average per cent of fat and production of milk and butter fat per breed. The data for per cent of butter fat in the table which follows includes tests of the milk of 1,974 cows and the data for milk yield includes tests of 1,510 cows.

Average per cent of fat and production of milk and butter fat per breed—American and European analyses.

Breed.	Fat tests.		Records of yield.		
	Number of cows.	Fat in milk.	Number of cows.	Average daily milk yield.	Average daily fat yield.
		Per cent.		*Pounds.*	*Pounds.*
Jersey	491	4.98	425	27.3	1.36
Guernsey	191	4.77	151	29.7	1.42
Holstein-Friesian	679	3.28	503	48.8	1.60
Shorthorn	370	3.73	275	43.5	1.62
Ayrshire	108	3.84	50	37.0	1.42
Red Polled	50	3.73	50	37.3	1.39
Brown Swiss	20	3.78	14	37.3	1.41
Devon	50	4.57	27	13.2	.60
Dutch Belted	5	3.40	5	27.2	.92
Polled Jersey	5	4.66	5	22.3	1.07
French Canadian	5	3.99	5	27.0	1.08

This summary includes a large number of European analyses of milk, especially of milk from Shorthorn, Jersey, and Holstein cows, and it may therefore be argued that the results do not fairly represent the quality and yield of milk produced by American cows of the respective breeds. To overcome this criticism all available analyses of milk produced by purebred American dairy cows were compiled and the results of this second summarization are shown in the following table, which includes data for 881 cows as regards the fat content of the milk and for the average milk yield of 825 cows:

Summary of American analyses of samples of milk from purebred cows.

Breed.	Fat test.		Records of yield.		
	Number of cows.	Fat in milk.	Number of cows.	Average daily milk yield.	Average daily fat yield.
		Per cent.		*Pounds.*	*Pounds.*
Jersey	164	5.13	153	24.5	1.26
Guernsey	67	4.87	53	28.9	1.41
Holstein-Friesian	502	3.30	493	48.9	1.61
Shorthorn	43	3.58	39	31.9	1.14
Ayrshire	33	3.85	18	27.7	1.07
Red Polled	15	3.84	15	26.6	1.02
Brown Swiss	14	3.77	14	37.3	1.41
Dutch Belted	5	3.40	5	27.2	.92
Devon	28	4.64	25	11.8	.55
Polled Jersey	5	4.66	5	22.9	1.07
French Canadian	5	3.99	5	27.0	1.08

If the results are arranged in the order of the average daily amounts of fat produced by the cows, we note that the Holstein-Friesian cows lead the list with an average production of 1.61 pounds of fat. The other breeds follow in this order: Guernsey and Brown Swiss, 1.41 pounds of butter fat; Jersey, 1.26 pounds; Shorthorn, 1.14 pounds; French Canadian, 1.08 pounds; Ayrshire and Polled Jersey, 1.07 pounds; Red Polled, 1.02 pounds, etc.

The data obtained for the Holstein-Friesian cows differ somewhat in their character from those for cows of the other breeds from the fact that the Holstein tests in a large majority of cases were of short duration, i. e., mostly seven days, and were conducted under a more or less forced system of feeding. The large number of animals contributing to the average data for this breed renders the figures valuable as an expression of the average quality of milk of American Holsteins and their production of milk and butter fat at this time. The latter figures may be considered maximum when the performance of a large number of animals is summarized. The data given in the column headed "Per cent of fat" represent, as we believe, very accurately the average quality of milk produced by purebred cows of the different dairy breeds in this country at the present time.

RECORDS MADE AT COLUMBIAN EXPOSITION, 1893.

Thirty-day butter test at World's Columbian Exposition, Chicago, 1893.

[Taken from Hoard's Dairyman, Vol. 24.]

Ranking No.	Name of cow.	Breed.	Yield of milk.	Yield of butter.	Value of butter.	Cost of feed.	Net profit.	Owner.	State.
			Lbs.	*Lbs.*					
1	Brown Bessie	Jersey	1,134.6	72.24	$33.27	$8.57	$24.70	H. C. Taylor	Wis.
2	Merry Maiden	do	965.0	66.70	30.72	7.62	23.10	O. & C. T. Graves.	Mo.
3	Kitty Clay 4th	Shorthorn	1,592.9	62.24	28.53	8.49	20.04	J. K. Innes	Pa.
4	Stoke Pogis Regina.	Jersey	1,012.2	60.27	27.77	8.19	19.58	Est. F. Billings	Vt.
5	Purity	Guernsey	1,060.7	54.80	24.95	5.58	19.38	G. H. Davison	N. Y.
6	Careno	do	922.3	54.94	25.01	6.11	18.90	N. K. Fairbank	Wis.
7	Ida Marigold	Jersey	985.8	59.30	27.34	8.45	18.89	C. A. Sweet	N. Y.
8	Sheba Rex	do	1,004.2	57.51	26.49	7.92	18.57	T. A. Havemeyer.	N. J.
9	Vesta's Valencia	Guernsey	985.7	52.47	23.89	5.65	18.24	A. J. Cassatt	Pa.
10	Sweet Ada	do	986.2	55.54	25.30	7.08	18.22	J. M. Eddy	N. Y.
11	Cupid's Jersey Maid.	Jersey	1,028.7	55.16	25.40	7.48	17.92	C. S. Dole	Ill.
12	Romp's Princess	do	704.7	51.36	23.68	5.90	17.78	W. Gettys	Tenn
13	Flora Temple 3d	do	923.6	55.06	25.36	7.70	17.66	F. Brouson	Conn.
14	Baroness Argyle	do	925.5	56.22	25.90	8.27	17.63	E. S. Henry	Conn.
15	Materna	Guernsey	1,058.4	54.68	24.90	7.36	17.54	N. K. Fairbank	Ill.
16	Select 8th	do	866.9	54.05	24.61	7.07	17.54	Francis Shaw	Mass.
17	Exile's Lulu	Jersey	988.4	54.02	24.88	7.42	17.46	C. I. Hudson	N. Y.
18	Katherine of Pittsford.	do	1,062.3	54.11	24.92	7.66	17.26	E. F. Hawley	N. Y.
19	Duchess of Orleans.	Guernsey	1,044.3	50.71	23.10	5.98	17.12	Francis Shaw	Mass.
20	Hugo Countess	Jersey	684.2	48.17	22.17	5.21	16.96	D. L. Heinsheimer.	Iowa.
21	Marita	Guernsey	1,014.6	47.55	21.65	5.72	15.93		
22	Islip Lenox	Jersey	714.6	47.70	21.95	6.14	15.81	A. P. Foster	Minn.
23	Signal Queen	do	944.5	51.52	23.74	8.00	15.74	F. Eno	N. Y.
24	Bashful 2d	Shorthorn	971.3	47.47	21.76	6.26	15.50	W. Miller	Iowa.
25	Sayda 3d	Jersey	843.6	47.82	22.01	6.71	15.30	E. Brewer	Conn.
26	Ethics of Cornwall.	Guernsey	865.4	47.92	21.82	6.53	15.29	G. H. Davison	N. Y.
27	Kittie Clay 3d	Shorthorn	1,230.6	50.15	22.98	7.74	15.24	J. K. Innes	Pa.
28	Waterloo Daisy	do	1,169.1	47.77	21.89	7.28	14.61	F. Martindale	Ontario.
29	Rosette	Guernsey	904.3	45.89	20.90	6.37	14.53	L. P. Morton	N. Y.
30	Nora	Shorthorn	1,037.2	47.20	21.63	7.33	14.30	D. Sheehan & Sons.	Iowa.
31	Aldine	Guernsey	767.8	44.25	20.15	6.13	14.02	E. Michener	Pa.
32	Lady Bright	Shorthorn	1,048.8	44.52	20.40	6.90	13.50	H. Wright	Ontario.
33	Lady of Ellerslie	Guernsey	658.3	41.44	18.87	5.51	13.36	L. P. Morton	N. Y.
34	Genevieve	Shorthorn	1,071.1	43.85	20.10	6.98	13.12	W. W. Waltmire	Kans.
35	Amanda	Guernsey	847.6	40.93	18.64	5.86	12.78	J. L. Fisher	Pa.
36	Betsy 7th	Shorthorn	948.8	41.82	19.16	6.44	12.72	Flora V. Spencer.	N. Y.

Thirty-day butter test at World's Columbian Exposition, Chicago, 1893—Continued.

Ranking No.	Name of cow.	Breed.	Yield of milk.	Yield of butter.	Value of butter.	Cost of feed.	Net profit.	Owner.	State.
			Lbs.	*Lbs.*					
37	Kitty Clay 7th....	Shorthorn	831.2	42.43	$19.45	$6.79	$12.66	Flora V. Spencer.	N. Y.
38	Kitty Clay 5th....	.....do....	926.9	41.10	18.84	6.24	12.60	.....do...........	N. Y.
39	Princess Aster 2d..	Guernsey	866.8	41.65	18.97	6.37	12.60	Hopewell Bros ..	Mass.
40	Belle Prince......	Shorthorn	1,099.6	42.17	19.32	7.18	12.14	D. Sheehan & Sons.	Iowa.
41	Vervain..........	.....do....	1,093.6	40.48	18.55	6.56	11.99	Morganza Reform School.	Pa.
42	Essence...........	Guernsey.	669.1	37.36	17.02	5.46	11.57	L. P. Morton.....	N. Y.
43	Fair Maid of Hullett.	Shorthorn	884.9	39.12	17.93	6.39	11.54	Wm. Granger....	Ontario.
44	Lucy Ann.........	.....do....	788.7	36.36	16.67	7.03	9.64	Flora V. Spencer.	N. Y.
45	Rosa..............	.....do....	923.6	35.97	16.48	6.95	9.53	Pennsylvania Reform School.	Pa.

Summary of thirty-day butter test.

	Yield of milk.	Yield of butter.	Value of butter.	Net profit.
	Pounds.	*Pounds.*		
15 Jerseys..	13,921.9	837.21	$385.59	$274.13
15 Guernseys..	13,518.4	724.17	329.77	237.00
15 Shorthorns...	15,618.3	662.67	303.69	198.89

Ninety-day butter contest at World's Columbian Exposition, Chicago, 1893.

[Taken from Hoard's Dairyman, Vol. 24.]

Cow No.	Name of cow.	Breed.	Yield of milk.	Yield of fat.	Value of butter.	Value of solids not fat.	Cost of food.	Cost of butter color.	Value of butter, solids not fat, and live-weight gain.	Cost of food, butter color, and live-weight loss.	Net profit.	Owner.	State.
			Pounds.	*Pounds.*				*Cents.*					
1	Brown Bessie	Jersey	3,634.0	178.12	$88.770	$6.344	$25.511	0.014	$98.749	$25.525	$73.224	H. C. Taylor	Wisconsin.
2	Merry Maiden	do	3,041.2	164.81	82.028	5.349	23.391	.013	87.917	23.404	64.513	O. & C. T. Graves	Missouri.
3	Ida Marigold	do	3,448.3	164.28	81.809	5.973	27.125	.013	91.292	27.138	64.154	C. A. Sweet	New York.
4	Sheba Rex	do	3,283.3	156.83	77.891	5.729	24.845	.013	86.455	24.858	61.597	T. A. Havemeyer	New Jersey.
5	Hugo Countess	do	3,542.9	157.85	78.462	6.290	25.492	.013	86.237	25.505	60.732	D. L. Heinsheimer	Iowa.
6	Baroness Argyle	do	3,266.2	159.93	79.432	5.643	26.412	.013	86.515	26.425	60.090	E. S. Henry	Connecticut.
7	Islip Lenox	do	3,070.0	146.46	72.893	5.469	23.978	.012	83.222	23.991	59.231	A. P. Foster	Minnesota.
8	Romp's Princess	do	2,984.4	154.97	77.021	5.268	23.434	.012	82.469	23.446	59.023	W. Gettys	Tennessee.
9	Materna	Guernsey	3,511.8	153.39	74.744	6.362	22.693	.006	81.106	23.284	57.822	N. K. Fairbank	Illinois.
10	Sweet Ada	do	3,225.5	147.61	71.922	5.816	22.050	.006	78.773	22.056	56.717	J. M. Eddy	New York.
11	Flora Temple 3d	Jersey	3,238.2	145.45	72.202	5.293	21.415	.012	80.915	24.427	56.488	F. Bronson	Connecticut.
12	Alteration	do	3,065.7	148.03	73.290	5.447	22.626	.012	78.737	22.638	56.099	Matthews & Hume	Alabama.
13	Little Goldie	do	3,214.1	144.79	72.063	5.713	24.035	.012	79.216	24.047	55.169	C. I. Hood	Massachusetts.
14	Select 8th	Guernsey	2,986.1	140.68	68.551	5.364	21.436	.005	76.480	21.441	55.039	Francis Shaw	Do.
15	Albert's Gem	Jersey	2,666.4	136.43	67.735	4.788	23.366	.011	76.933	23.377	53.556	F. A. Schermerhorn	Do.
16	Nora	Shorthorn	3,679.8	133.85	65.083	6.546	24.113	.057	76.804	24.170	52.634	D. Sheehan & Sons	Iowa.
17	Exile's Lulu (Lily)	Jersey	3,224.5	138.43	68.932	5.599	23.794	.011	76.331	23.805	52.526	C. I. Hudson	New York.
18	Lily Martin	do	3,520.2	135.11	67.151	5.986	25.156	.011	76.152	25.167	50.985	M. C. Campbell	Tennessee.
19	Natasqua	do	2,463.9	132.89	65.987	4.454	21.078	.010	72.061	21.088	50.973	T. A. Havemeyer	New Jersey.
20	Sayda 3d	do	3,043.1	139.93	69.545	5.365	23.270	.011	74.910	24.226	50.684	E. Brewer	Connecticut.
21	Signal Queen	do	3,190.6	136.30	67.651	5.536	24.377	.011	74.807	24.388	50.419	F. Eno	New York.
22	Essence	Guernsey	2,847.5	132.57	64.492	4.999	18.527	.005	69.491	19.207	50.284	L. P. Morton	Do.
23	Genevieve	Shorthorn	3,823.1	128.64	62.442	6.642	22.500	.055	72.819	22.555	50.264	W. W. Waltmire	Kansas.
24	Ethics of Cornwall	Guernsey	2,953.1	132.17	64.267	5.228	19.993	.005	70.170	19.998	50.172	G. H. Davison	New York.
25	Justa Pogis	Jersey	2,745.3	129.70	64.524	4.981	22.749	.010	72.565	22.759	49.806	Agricultural Experiment Station.	Kentucky.
26	Pearl of Riverside	do	2,653.7	132.27	65.743	4.831	23.773	.010	72.824	23.783	49.041	H. A. Huntington	Tennessee.
27	Waterloo Daisy	Shorthorn	3,601.3	126.55	61.625	6.132	20.992	.054	69.737	21.046	48.691	Daniel Reed	Ontario.
28	Betsy 7th	do	3,167.4	116.50	56.577	5.395	21.708	.049	70.207	21.757	48.450	Flora V. Spencer	New York.
29	Princess Honoria	Jersey	2,690.4	131.19	65.252	4.801	22.899	.010	71.178	22.909	48.269	Estate Frederick Billings	Vermont.
30	Imp. Bashful 2d	Shorthorn	3,341.0	127.84	62.095	5.768	20.433	.054	67.863	20.667	47.196	Wm. Miller	Iowa.
31	Daisy Hinman	Jersey	2,677.8	127.62	63.444	4.660	22.224	.010	68.284	22.234	46.050	Ayer & McKinney	Pennsylvania.
32	Plumwood Belle	Shorthorn	2,721.1	112.49	54.553	4.839	21.308	.047	67.357	21.355	46.002	Christian Hintz	Ohio.
33	Amanda	Guernsey	3,276.9	129.34	62.912	5.636	20.082	.005	68.548	22.607	45.941	J. L. Fisher	Pennsylvania.
34	Aldine	do	2,515.6	117.85	57.449	4.636	20.016	.005	65.100	20.021	45.079	Ezra Michener	Do.
35	Fair Maid of Hullet	Shorthorn	3,520.7	125.38	60.814	6.053	21.079	.053	66.867	21.987	44.880	Wm. Granger	Ontario.
36	Rosette 5th	Guernsey	2,884.0	116.98	56.994	5.025	19.241	.005	63.864	19.246	44.618	L. P. Morton	New York.
37	Lady of Ellerslie	do	2,392.2	118.49	57.706	4.326	18.967	.005	62.977	18.972	44.005	do	Do.
38	Princess Aster 2d	do	2,826.9	115.55	56.268	4.868	18.788	.004	61.136	19.242	41.894	Hopewell Bros	Massachusetts.

Ninety-day butter contest at World's Columbian Exposition, Chicago, 1893—Continued.

Cow No.	Name of cow.	Breed.	Yield of milk.	Yield of fat.	Value of butter.	Value of solids not fat.	Cost of food.	Cost of butter color.	Value of butter, solids not fat, and live-weight gain.	Cost of food, butter color, and live-weight loss.	Net profit.	Owner.	State.
			Pounds.	*Pounds.*				*Cents.*					
39	Emma Abbott 3d	Shorthorn	2,647.1	100.13	$48.743	$4.667	$19.726	0.042	$61.600	$19.768	$41.832	I. U. Wetmore	Illinois.
40	Grace Pansy 2d	Jersey	2,344.4	121.03	60.068	4.172	22.345	.010	64.240	23.030	41.210	G. V. Green	Kentucky.
41	Belle Price	Shorthorn	3,249.4	106.81	51.930	5.557	21.309	.045	62.482	21.354	41.128	D. Sheehan & Sons	Iowa.
42	Mernie	Guernsey	2,346.1	113.96	55.484	4.294	19.919	.004	60.768	19.923	40.845	G. C. Hill	Wisconsin.
43	Claudia	do	2,377.7	110.23	53.701	4.304	19.947	.004	59.850	19.951	39.899	J. L. Fisher	Pennsylvania.
44	Lorita	Jersey	2,320.3	120.64	59.935	4.124	21.356	.010	64.059	24.561	39.498	Richardson Bros	Iowa.
45	Gay Orphan	do	2,175.9	114.27	57.006	3.872	19.270	.009	60.878	21.529	39.349	Agricultural Experiment Station.	Kentucky.
46	Rosa	Shorthorn	2,866.1	96.24	46.311	4.905	20.787	.041	59.996	20.828	39.168	Pennsylvania Reform School.	Pennsylvania.
47	Azalia	do	2,432.5	98.81	48.160	4.394	18.678	.042	57.504	18.720	38.784	A. Morse	New York.
48	Lady Bright	do	2,908.9	95.13	46.802	4.853	16.414	.041	54.130	16.455	37.675	H. Wright	Ontario.
49	Kitty Clay 7th	do	2,689.1	99.96	48.620	4.674	22.942	.042	58.694	22.984	35.710	Flora V. Spencer	New York.
50	Countess Cora	Guernsey	2,143.5	101.53	49.419	3.885	19.014	.004	54.519	19.018	35.501	Francis Shaw	Massachusetts.
51	Lawn Tennis	do	2,204.1	101.64	49.341	3.936	17.960	.004	53.277	17.964	35.313	Silas Betts	Pennsylvania.
52	Lottie C. 2d	do	2,371.9	102.65	49.924	4.153	18.572	.004	54.077	18.846	35.231	Joseph Evans	New Jersey.
53	Marchioness 6th	Shorthorn	2,614.9	99.94	48.549	4.623	23.212	.042	58.437	23.254	35.183	T. Ballantyne & Son	Ontario.
54	Prudie of Castle Brook	Guernsey	2,124.8	98.20	47.795	3.728	18.337	.004	53.053	18.341	34.712	J. J. Bush	New York.
55	Belle of Touillets	do	2,248.7	100.62	49.014	3.963	19.237	.004	53.697	19.241	34.456	F. Shaw	Massachusetts.
56	Lucy Ann	Shorthorn	2,599.3	93.63	45.526	4.419	23.285	.039	57.595	23.324	34.271	Flora V. Spencer	New York.
57	Maud's Antartic	do	2,472.2	87.75	42.662	4.250	20.996	.037	55.237	21.033	34.204	B. B. Overmeyer	Ohio.
58	Miss Cowslip	Guernsey	2,306.3	99.59	48.420	4.106	18.574	.004	52.526	18.623	33.903	Estate E. F. Bowditch	Massachusetts.
59	Maid of Oxford 3d	Shorthorn	2,656.2	89.19	43.343	4.566	19.286	.038	52.904	19.324	33.580	A. Morse	New York.
60	Daisy Flower	Guernsey	2,204.6	98.11	47.707	3.917	18.761	.004	52.344	18.765	33.579	S. L. Hoxie	Do.
61	Iza	Shorthorn	2,409.6	91.17	44.285	4.317	19.326	.038	52.652	19.364	33.288	A. Morse	Do.
62	Jane Ash	Guernsey	1,872.5	97.40	47.413	3.374	18.500	.005	51.552	18.505	33.047	Walter Cutting	Massachusetts.
63	Honor	do	2,257.0	94.38	45.943	3.965	19.332	.004	51.393	19.336	32.057	Edw. Norton	Connecticut.
64	Annice Magnet	Jersey			48.538	3.622	20.576	.008	52.160	21.034	31.126	John Boyd	Illinois.
65	Fancy 11th	Shorthorn	1,810.6	81.62	39.613	3.273	20.034	.034	50.176	20.068	30.108	J. S. Thornton & Son	Pennsylvania.
66	Jeweller's Jessie	Guernsey	2,212.9	93.15	45.301	4.013	19.723	.004	49.764	19.727	30.037	Francis Shaw	Massachusetts.
67	Ovation	do	2,017.0	89.53	43.554	3.580	17.407	.003	47.179	17.410	29.769	A. J. Cassatt	Pennsylvania.
68	Royal Duchess	Shorthorn	2,202.1	83.00	40.358	3.802	20.222	.035	49.920	20.257	29.663	J. F. Davis	Ontario.
69	Rosabella	Guernsey	1,942.3	91.97	44.834	3.467	19.259	.003	48.301	19.262	29.039	L. P. Morton	New York.
70	Panacea	do	1,732.7	86.97	42.280	3.084	17.806	.003	46.489	17.809	28.680	I. R. Scott	Pennsylvania.
71	Orange Girl	Shorthorn	2,206.0	79.90	38.778	3.885	19.088	.034	47.388	19.122	28.260	E. B. Meriwether & Son	Illinois.
72	Butterfly 3d	do	2,597.5	86.89	42.204	4.483	22.783	.037	50.827	22.820	28.007	Emory Cobb	Do.
73	Maid of Oxford 2d	do	2,151.1	71.96	34.984	3.558	19.450	.030	45.877	19.480	26.397	A. Morse	New York.
74	Fillpail 9th	do	1,896.2	76.59	37.215	3.416	22.118	.032	46.886	22.150	24.736	Flora V. Spencer	Do.

Summary of results of ninety-day butter contest.

Breed.	Yield of milk.	Yield of fat.	Value of butter.	Cost of food.	Cost of butter color.	Net profit.
	Pounds.	*Pounds.*				
25 Jerseys	73,488.8	3,516.08	$1,747.37	$587.50	$0.28	$1,323.81
25 Guernseys	61,781.7	2,784.56	1,355.44	484.14	.11	997.64
24 Shorthorns	66,263.2	2,409.97	1,171.77	501.79	1.02	910.12

Records of dairy cows in fifteen-day cheese test, at World's Columbian Exposition, Chicago, 1893.

[Taken from Hoard's Dairyman, Vol. 24.]

Rank No.	Name of cow.	Breed.	Yield of milk.	Cheese made.	Whey credited.	Live weight gain.	Cheese value.	Whey value.	Live weight gain—value.	Total credit.	Cost of food.	Net profit.
			Lbs.	*Lbs.*	*Lbs.*	*Lbs.*						
1	Ida Marigold	Jersey	673.6	70.92	586.6	28	$9.47	$0.47	$1.26	$11.20	$4.23	$6.97
2	Merry Maiden	do	543.7	70.07	543.8	18	9.36	.44	.81	10.61	4.05	6.56
3	Lilly Martin	do	573.4	57.86	499.4	49	7.73	.40	2.20	10.33	3.99	6.34
4	Signal's Queen	do	581.0	60.97	505.9	43	8.14	.40	1.94	10.48	4.14	6.34
5	Nora	Shorthorn	663.1	60.56	590.0	56	7.80	.47	2.52	10.87	4.60	6.27
6	Baroness Argyle	Jersey	656.9	69.90	571.9	12	9.34	.46	.54	10.34	4.22	6.12
7	Exile's Lulu	do	632.0	64.95	550.4	14	8.68	.44	.63	9.75	3.65	6.10
8	Hugo Countess	do	628.4	66.91	547.3	16	8.94	.44	.72	10.10	4.14	5.96
9	Alteration	do	588.2	65.47	512.3	9	8.75	.41	.41	9.57	3.73	5.84
10	Betsy 7th	Shorthorn	483.0	42.94	429.6	66	5.58	.34	2.97	8.89	3.26	5.63
11	Brown Bessie	Jersey	639.1	68.47	556.6	1	9.14	.45	.05	9.64	4.18	5.46
12	Little Goldie	do	563.1	61.74	490.3	13	8.25	.39	.59	9.23	3.86	5.37
13	Genevieve	Shorthorn	685.2	59.13	609.4	34	7.69	.49	1.53	9.71	4.43	5.28
14	Sweet Ada	Guernsey	535.0	54.05	472.7	37	6.47	.38	1.67	8.52	3.25	5.27
15	Sheba Rex	Jersey	593.4	65.70	516.9	2	8.78	.41	.09	9.28	4.04	5.24
16	Albert's Gem	do	506.4	57.19	440.9	21	7.64	.35	.95	8.94	3.86	5.08
17	Amanda	Guernsey	482.2	52.56	426.2	21	6.29	.34	.95	7.58	2.52	5.06
18	Materna	do	597.2	62.01	527.7	7	7.42	.42	.31	8.15	3.33	4.82
19	Select 8th	do	545.6	56.35	482.2	20	6.74	.39	.90	8.03	3.24	4.79
20	Flora Temple 3d	Jersey	526.9	55.33	458.9	18	7.39	.37	.81	8.57	3.90	4.67
21	Rosette 5th	Guernsey	582.8	56.54	515.0	14	6.75	.41	.63	7.79	3.13	4.66
22	Jeweller's Jessie	do	455.4	45.68	402.4	42	5.46	.32	1.89	7.67	3.08	4.59
23	Justa Pogis	Jersey	448.2	51.17	390.3	30	6.84	.31	1.35	8.50	3.92	4.58
24	Kitty Clay 7th	Shorthorn	437.8	37.79	389.8	57	4.91	.31	2.57	7.79	3.27	4.52
25	EthicsofCornwall	Guernsey	494.0	50.66	436.6	21	6.06	.35	.94	7.35	3.01	4.34
26	Pearl of Riverside	Jersey	509.3	57.62	443.5	4	7.70	.35	.18	8.23	3.97	4.26
27	Bashful 2d	Shorthorn	658.0	58.32	585.2	8	7.59	.47	.36	8.42	4.35	4.07
28	Fancy 11th	do	429.1	41.61	381.6	60	5.41	.31	2.70	8.42	4.37	4.05
29	Lottie C. 2d	Guernsey	461.2	46.28	407.6	28	5.53	.33	1.26	7.12	2.08	4.04
30	Marchioness 6th	Shorthorn	540.5	48.64	480.7	49	6.32	.39	2.20	8.97	4.98	3.93
31	Sayda 3d	Jersey	524.4	56.82	456.7	0	7.59	.37	.00	7.96	4.12	3.84
32	Princess Honoria	do	488.2	54.75	425.1	[a] 5	7.31	.34	[a] .23	7.42	3.60	3.82
33	Grace Pansy	do	419.3	46.98	365.2	24	6.28	.29	1.08	7.65	3.86	3.79
34	Belle of Touillets	Guernsey	407.6	40.88	360.3	35	4.89	.29	1.58	6.76	3.10	3.66
35	Gay Orphan	Jersey	422.3	49.21	367.6	16	5.57	.29	.72	7.58	3.96	3.62
36	Butterfly 3d	Shorthorn	499.8	41.78	444.6	57	5.43	.36	2.57	8.36	4.76	3.60
37	Emma Abbott 3d	do	522.1	44.77	463.4	19	5.82	.37	.86	7.05	3.47	3.58
38	Mernie	Guernsey	429.0	47.57	379.0	17	5.69	.30	.76	6.75	3.19	3.56
39	Jane Ash	do	360.7	39.40	318.8	38	4.71	.25	1.71	6.67	3.13	3.54
40	Honor	do	418.3	41.21	369.6	25	4.93	.30	1.13	6.36	2.94	3.42
41	Daisy Hinman	Jersey	386.7	49.61	386.8	7	6.64	.31	.31	7.26	3.85	3.41
42	Annice Magnet	do	492.8	54.45	429.1	[a] 3	7.27	.34	[a] .14	7.47	4.07	3.40
43	Mina 3d	Guernsey	398.2	39.96	351.9	31	4.78	.28	1.41	6.46	3.08	3.38
44	Lorita	Jersey	444.7	49.31	387.5	9	6.59	.31	.41	7.31	3.96	3.35
45	Pretty Marchioness	do	376.5	45.77	376.6	14	6.12	.30	.63	7.05	3.75	3.30
46	Natasqua	do	429.3	50.33	373.4	[a] 8	6.74	.30	[a] .36	6.68	3.39	3.29
47	Daisy Flower	Guernsey	408.1	42.43	360.6	17	5.07	.29	.76	6.12	2.91	3.21
48	Panacea	do	373.2	39.36	329.8	29	4.71	.26	1.30	6.27	3.08	3.19
49	Iza	Shorthorn	446.3	39.82	396.9	32	5.18	.32	1.44	6.94	3.77	3.17
50	Prudie 3d of Castle Brook	Guernsey	391.2	38.87	345.7	23	4.65	.28	1.04	5.97	2.82	3.15
51	Countess Cora	do	406.2	42.38	359.1	16	5.07	.29	.73	6.09	2.94	3.15
52	Waterloo Daisy	Shorthorn	714.4	64.05	635.4	[a] 21	8.33	.51	[a] .94	7.90	4.78	3.12
53	Tristeka	Jersey	454.3	50.26	395.5	[a] 5	6.52	.32	[a] .23	6.81	3.70	3.11
54	Orange Girl	Shorthorn	433.4	38.24	385.5	30	4.97	.31	1.35	6.63	3.60	3.03

[a] Loss.

Records of dairy cows in fifteen-day cheese test, at World's Columbian Exposition, Chicago, 1893—Continued.

Rank No.	Name of cow.	Breed.	Yield of milk.	Cheese made.	Whey credited.	Live weight gain.	Cheese value.	Whey value.	Live weight gain—value.	Total credit.	Cost of food.	Net profit.
			Lbs.	*Lbs.*	*Lbs.*	*Lbs.*						
55	Martha Scott	Guernsey	372.5	37.88	329.3	27	$4.53	$0.26	$1.22	$6.01	$3.00	$3.01
56	Ovation	do	416.2	42.11	367.7	17	5.04	.29	.76	6.09	3.08	3.01
57	Fillpail 9th	Shorthorn	367.7	35.65	327.0	36	4.64	.26	1.62	6.52	3.51	3.01
58	Azalea	do	495.0	44.54	440.3	6	5.79	.35	.27	6.41	3.43	2.98
59	Fillpail 8th	do	307.2	27.71	273.2	62	3.61	.22	2.79	6.62	3.66	2.96
60	Lawn Tennis	Guernsey	394.0	41.56	318.2	18	4.97	.28	.80	6.05	3.15	2.90
61	Plumwood Belle	Shorthorn	441.0	41.40	392.2	25	5.38	.31	1.12	6.81	3.94	2.87
62	Lady of Ellerslie	Guernsey	423.7	47.47	374.4	*a* 11	5.68	.30	*a* .50	5.48	2.68	2.80
63	Bell Price	Shorthorn	527.9	44.94	469.6	11	5.84	.38	.49	6.71	3.92	2.79
64	Miss Cowslip	Guernsey	393.0	40.37	437.4	11	4.83	.28	.50	5.61	3.13	2.48
65	Claudia	do	428.9	45.04	379.1	*a* 4	5.39	.30	*a* .18	5.51	3.07	2.44
66	Maid of Oxford 2d	Shorthorn	442.5	36.82	393.7	24	4.79	.31	1.08	6.18	3.77	2.41
67	Rosa	do	439.7	36.31	391.1	15	4.72	.31	.68	5.71	3.31	2.40
68	Lucy Ann	do	468.0	41.57	416.3	11	5.41	.33	.49	6.23	3.90	2.33
69	Oxford Bloom	do	407.9	36.35	362.8	42	4.73	.29	1.89	6.91	4.58	2.33
70	Royal Duchess	do	466.7	39.73	415.1	31	5.17	.33	1.40	6.90	4.61	2.29
71	Maid of Oxford	do	449.5	37.40	399.8	20	4.86	.32	.90	6.08	3.81	2.27
72	Aldine	Guernsey	389.0	40.76	343.8	*a* 2	4.87	.27	*a* .09	5.05	3.13	1.92
73	Rosabella	do	375.3	39.24	331.6	3	4.69	.27	.13	5.09	3.18	1.91
74	Christata	Shorthorn	440.9	41.13	392.2	*a* 17	5.35	.31	*a* .77	4.89	3.50	1.39
75	Maud's Antartic	do	420.0	36.42	373.5	*a* 4	4.74	.30	*a* .18	4.86	3.78	1.08

a Loss.

Summary of fifteen-day cheese test.

Breed.	Milk given.	Cheese made.	Whey credited.	Live weight gain.	Value of cheese.	Value of whey.	Value of live weight.	Total credit.	Cost of food.	Net profit.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*						
25 Jerseys	13,296.4	1,451.76	11,578.7	327	$193.98	$9.26	$14.72	$217.96	$98.14	$119.82
25 Guernseys	10,938.6	1,130.62	9,666.7	480	135.22	7.73	21.60	164.55	76.25	88.30
25 Shorthorns	12,186.9	1,077.60	10,838.9	709	140.14	8.67	31.91	180.72	99.36	81.36

RESULTS OF TESTS AT PAN-AMERICAN EXPOSITION, BUFFALO, 1901.

Six months' test, Pan-American Exposition, Buffalo, N. Y., 1901; Cows placed in order of their profit on estimated butter.

[Taken from Hoard's Dairyman, Vol. 32.]

No.	Name of cow.	Breed.	Yield of milk.	Fat in milk.	Estimated butter yield.	Value of butter at 25 cents per pound.	Total cost of feed.	Profit on butter at 25 cents per pound.	Weight of cow, May 1.	Gain (+) or loss (−) in weight.
			Lbs.	*P. ct.*	*Lbs.*				*Lbs.*	*Lbs.*
1	Mary Marshall	Guernsey	5,611.0	5.36	354.26	$88.56	$29.16	$59.40	987	+ 64
2	Mayflower 2d	Red Polled	6,161.5	4.45	323.15	80.79	28.69	52.10	1,134	+ 66
3	Cassiopiea	Guernsey	6,270.1	4.26	315.01	78.75	28.40	50.35	1,019	+ 24
4	Primrose Park's Prude	Jersey	4,639.4	5.64	308.24	77.06	26.81	50.25	992	+ 54
5	Procris of Paxtang	Guernsey	5,992.6	4.43	313.10	78.27	28.78	49.49	869	+ 1
6	Beauty of Norval	Holstein	8,140.7	3.42	328.01	82.00	32.65	49.35	1,017	+ 64
7	Queen May	Jersey	5,343.1	4.74	298.54	74.63	27.17	47.46	974	+ 42
8	Betsy 1st	Ayrshire	7,041.5	3.59	298.57	74.64	28.57	46.07	973	+ 25
9	Pearl of Woodside	do	6,730.8	3.74	296.07	74.02	28.56	45.46	912	+ 80
10	Kirsty Wallace	do	6,469.7	3.83	292.31	73.08	27.74	45.34	966	+ 44
11	Gipsey	Jersey	5,790.3	4.4	300.21	75.05	30.27	44.78	1,004	− 7
12	Mossy of H	do	5,762.4	4.27	290.01	72.50	28.01	44.49	822	+ 67
13	Hulda Wayne	Holstein	8,040.7	3.23	305.79	76.45	32.40	44.05	989	+ 55

Six months' test, Pan-American Exposition, Buffalo, N. Y., 1901; Cows placed in order of their profit on estimated butter—Continued.

No.	Name of cow.	Breed.	Yield of milk.	Fat in milk.	Estimated butter yield.	Value of butter at 25 cents per pound.	Total cost of feed.	Profit on butter at 25 cents per pound.	Weight of cow, May 1.	Gain (+) or loss (−) in weight.
			Lbs.	*P. ct.*	*Lbs.*				*Lbs.*	*Lbs.*
14	Susie	Red Poll	6,430.1	3.8	287.50	$71.87	$28.07	$43.80	1,187	+ 38
15	Miss Molly	Shorthorn	6,894.1	3.71	301.47	75.37	32.36	43.01	1,075	+134
16	Queen	Polled Jersey.	4,010.0	5.63	265.98	66.49	23.60	42.89	648	+101
17	Alice 2d	Ayrshire	6,127.9	3.91	282.15	70.54	28.29	42.25	1,054	+ 82
18	Vega	Guernsey	5,029.1	4.59	271.64	67.91	26.16	41.75	1,094	+ 76
19	Belle T	Brown Swiss	5,789.6	4.09	278.45	69.61	28.38	41.23	1,039	− 7
20	Tidy Abbekirk	Holstein	7,659.1	3.28	296.00	74.00	32.97	41.03	1,008	+101
21	Denise Championne.	French Canadian.	5,404.2	4.03	256.63	64.16	23.52	40.64	750	+ 64
22	Rouen	do	4,896.1	4.46	257.20	64.30	23.68	40.62	794	+ 27
23	Eliza	Brown Swiss	6,407.9	3.8	286.89	71.72	31.12	40.60	1,273	+ 2
24	Inka Mercedes	Holstein	8,028.3	3.05	288.34	72.08	32.45	39.63	915	+ 72
25	Liena Flore	French Canadian.	4,558.0	3.92	252.54	63.13	23.72	39.41	1,030	+ 63
26	Ora [a]	Polled Jersey.	4,804.8	4.40	249.36	62.34	23.17	39.17	1,013	− 17
27	Pride's Favorite	do	4,569.1	4.60	247.71	61.93	22.97	38.96	665	+ 71
28	Lady Florie	Ayrshire	6,626.3	3.40	265.51	66.38	27.68	38.70	1,105	− 13
29	Rexina [b]	Jersey	5,451.9	3.98	256.01	64.00	25.48	38.52	933	+ 33
30	Easter	Red Poll	6,058.7	3.70	263.96	65.99	27.83	38.16	834	+ 99
31	Belle of Warwick [c]	Dutch Belted.	5,313.2	4.15	259.80	64.95	26.93	38.02	935	+ 83
32	Hope of Minn	Brown Swiss	6,117.0	3.61	259.85	64.96	27.60	37.36	1,015	+ 54
33	Meg	Holstein	7,391.0	3.25	282.84	70.71	34.11	36.60	1,314	+ 99
34	Queen Bess	Shorthorn	6,547.9	3.57	275.21	68.80	32.49	36.31	1,105	+192
35	Princess of Thule	do	5,885.7	3.82	264.79	66.20	32.49	33.71	1,261	+132
36	Lucy B	Brown Swiss	6,356.2	3.45	258.13	64.53	31.01	33.52	1,193	+ 84
37	Phyllis	Polled Jersey.	4,430.0	4.38	228.12	57.03	23.83	33.20	799	+ 59
38	Luna	French Canadian.	5,048.5	3.79	225.03	56.26	23.52	32.74	760	+102
39	Flora 2d	Red Poll	4,628.4	4.29	233.55	58.39	26.28	32.11	1,068	+102
40	Tryste	do	5,416.2	3.68	234.97	58.74	27.15	31.59	1,036	+ 44
41	Rose 3d	Shorthorn	6,492.8	3.31	253.35	63.34	32.37	30.97	1,105	+125
42	Nicola	Brown Swiss	6,220.8	3.25	238.12	59.53	29.18	30.35	1,208	+ 65
43	Madora Fern	Guernsey	4,224.8	4.36	214.87	53.72	24.36	29.36	958	+ 30
44	Daisy D	Shorthorn	6,054.4	3.43	244.74	61.18	32.38	28.80	1,161	+219
45	Madeline [d]	Dutch Belted.	5,661.0	3.23	215.26	53.81	26.66	27.15	1,028	+ 77
46	Holland Creamery	do	5,287.3	3.36	209.51	52.38	27.21	24.17	806	+ 90
47	La Bouchette	French Canadian.	3,849.6	3.67	166.38	41.59	18.65	22.94	647	+ 32
48	Justina [e]	Polled Jersey.	2,465.0	4.31	124.95	31.24	15.84	15.40	913	+ 61
49	Merletta	Dutch Belted.	4,715.4	3.2	170.03	42.51	27.45	15.06	948	+114
50	Alberta	do	3,916.6	3.09	142.42	35.60	24.11	11.49	1,147	+ 12

---

[a] Did not calve for 2 weeks after test began.
[b] Did not calve till May 7.
[c] Arrived 18 days late.
[d] Arrived 18 days late, so is short that much in record.
[e] Last calf, October, 1900.

ST. LOUIS WORLD'S FAIR COW DEMONSTRATIONS, 1904.

Totals for individuals in Class A. For the economic production of butter fat and butter, 120 days.

[Taken from special bulletin, American Jersey Cattle Club.]

Official No.	Name and herd record No.	Total yield of milk.	Total yield of fat.	Average fat in milk.	Overrun. a	Total estimated butter yield.	Value of estimated butter yield at 25c. per lb.	Total cost of feed.	Net profit or difference between value of product and feed cost.
	JERSEYS.								
		Pounds.	*Pounds.*	*Per cent.*	*Per cent.*	*Pounds.*			
21	Oonan 11th of Hood Farm 143105	5,141.1	250.522	4.9	17.9	295.365	$73.841	$30.056	$43.785
22	Airy's Vinie Hugo 177868	5,437.0	234.234	4.3	17.5	275.225	68.806	28.937	39.869
23	Blossom of Florence 164108	4,906.3	236.632	4.8	17.8	278.752	69.688	29.901	39.787
24	Chroma 3d of Hood Farm 134744	5,080.8	195.809	3.8	17.2	229.488	57.372	27.689	29.683
25	Dorinda Darling 146249	5,555.0	255.321	4.6	17.7	300.513	75.128	29.048	46.080
26	Prize May's Duchess 2d 132976	5,725.0	254.500	4.4	17.6	299.292	74.823	29.804	45.019
27	Yoethe Koffee of Lawn 121540	4,054.6	200.630	4.9	17.9	236.543	59.136	26.691	32.445
28	Bloomfield Oonan 163281	4,108.1	208.246	5.1	18.0	245.730	61.433	27.678	33.755
29	Clarion Girl 161289	4,497.1	214.896	4.8	17.8	253.147	63.287	26.879	36.408
30	Ella Golden 149309	5,120.7	246.523	4.8	17.8	290.404	72.601	29.251	43.350
31	Aaron's Queen 155591	4,947.9	238.574	4.8	17.8	281.040	70.260	28.471	41.789
32	Dela S. of Eau Claire 128005	5,042.7	210.532	4.2	17.5	247.375	61.844	27.384	34.460
33	Lassie Easter Pogis 143523	4,313.8	217.851	5.0	17.9	256.835	64.209	26.581	37.628
34	Rosa's Glory 157795	4,923.8	208.462	4.2	17.5	244.943	61.236	27.739	33.497
35	Annie of Seekonk 159124	4,994.2	240.273	4.8	17.8	283.042	70.760	28.746	42.014
36	Zaza of Menlo 147312	4,653.7	193.871	4.2	17.5	227.798	56.950	30.226	26.724
37	Loretta D. 141708	5,802.7	280.161	4.8	17.8	330.030	82.507	31.989	50.518
38	Oonan 23d of Hood Farm 163228	5,087.0	246.438	4.8	17.8	290.304	72.576	29.339	43.237
39	Diploma's Brown Lassie 166688	5,212.7	264.879	5.1	18.0	312.557	78.139	30.270	47.869
40	Baronetti of Ingleside 132059	4,916.2	248.788	5.1	18.0	293.570	73.392	29.167	44.225
41	Gorgeous Rosebud 181095	5,075.7	204.247	4.0	17.3	239.582	59.895	29.334	30.561
42	Hoodoo Jane 161291	4,712.4	218.128	4.6	17.7	256.737	64.184	26.057	38.127
43	Diploma's Brown Bessie 164887	5,095.6	243.375	4.7	17.8	286.696	71.674	29.595	42.079
44	King's Gazelle Fawn 153509	4,680.5	234.246	5.0	17.9	276.176	69.044	31.045	37.999
45	Eurybia 143822	5,439.6	263.557	4.8	17.8	310.470	77.618	30.630	46.988
	BROWN SWISS.								
1	Nellie Howlas 1621	6,126.4	209.798	3.4	16.8	245.044	61.261	33.489	27.772
2	Folie 1552	4,403.0	171.468	3.9	17.2	200.960	50.240	28.961	21.279
3	Maud H. 1283	4,618.6	177.331	3.8	17.2	207.830	51.957	32.205	19.752
4	Miss Laura D. 1401	5,435.6	197.688	3.6	17.0	231.295	57.823	34.242	23.581
5	Florine 12th 1408	5,924.5	201.523	3.4	16.8	235.379	58.845	35.574	23.271

	HOLSTEIN-FRIESIANS.								
6	Jolie 4th's Pauline De Kol 40399	6,174.5	213.752	3.5	16.9	249.876	62.469	2.798	29.671
7	Dorinda De Kol 2d 54882	5,659.0	180.965	3.2	16.5	210.824	52.706	34.675	18.031
8	Jolie Johanna 36779	6,630.6	221.649	3.3	16.7	258.664	64.667	34.516	30.151
9	Daisy Lamb Pieterje De Kol 46182	6,040.0	188.526	3.1	16.4	219.444	54.861	32.662	22.199
10	Joe Bach Josephine 46940	6,236.4	198.586	3.2	16.5	231.353	57.838	34.539	23.299
11	Bessie Wayne's Champion	6,522.9	215.634	3.3	16.7	215.644	53.911	34.700	19.211
12	Anchalette De Kol 43970	6,405.1	245.303	3.8	17.2	287.495	71.874	34.165	37.709
13	Maple Croft's De Kol Perfection 40309	6,929.4	254.605	3.7	17.1	298.142	74.536	35.232	39.304
14	Lady Truth Gerben Mechthilde 48037	6,311.8	197.950	3.1	16.4	230.414	57.604	33.571	24.033
15	Heeringer's Pauline 2d 58146	6,792.3	239.617	3.5	16.9	280.112	70.028	35.619	34.409
16	De Kol's de Jung 47052	5,671.8	200.281	3.5	16.9	234.128	58.532	33.416	25.116
17	Mary of Glencoe 70680	6,607.9	222.443	3.4	16.8	259.813	64.953	34.817	29.186
18	Hadria 2d 51356	6,233.2	227.101	3.6	17.0	265.708	66.427	34.464	31.963
19	Sally Clothilde 42717	5,853.3	209.422	3.6	17.0	245.024	61.256	33.956	27.300
20	Shadybrook Gerben 43753	8,101.7	282.601	3.5	16.9	330.361	82.590	36.573	46.017

---

[a] The "overrun" is the excess of butter over butter fat expressed as percentage of butter fat. See Class A, page 183.

Herd averages in Class A_1 for the economic production of butter fat and butter, 120 days.

Breed.	Number of cows in test.	Average yield of milk per cow.	Average yield of milk per day per cow.	Average fat in milk.	Average yield of fat per cow.	Average yield of fat per day per cow.	Average estimated yield of butter per cow.	Average estimated yield of butter per day per cow.	Value of butter per cow.	Value of butter per day per cow.	Average cost of feed per cow.	Average daily cost of feed per cow.	Average net profit per cow.[a]	Average daily net profit per cow.[a]
		Pounds.	*Pounds.*	*Per cent.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*						
Jersey	25	4,981.0	41.5	4.7	232.43	1.936	273.66	2.28	$68.42	$0.570	$28.90	$0.240	$39.52	$0.33
Holstein-Friesian	15	6,411.7	53.4	3.4	219.89	1.832	254.46	2.12	63.62	.530	34.38	.286	29.23	.24⅓
Brown Swiss	5	5,301.6	44.2	3.6	191.56	1.596	224.10	1.87	56.02	.466	32.89	.274	23.13	.19¼

[a] Difference between value of products and cost of feed.

Totals for individuals in Class B, for the economic production of milk for all purposes related to dairying, 120 days.

[Taken from special bulletin, American Jersey Cattle Club.]

Official No.	Name and Herd Record No.	Total yield of milk.	Average fat in milk.	Total yield of fat.	Average solids not fat.	Total yield of solids not fat.	Value of fat at 30 cents per pound.	Value of solids not fat at 3 cents per pound.	Total value of products.	Total cost of feed.	Net profit.[a]
	JERSEYS.										
		Pounds.	*Per cent.*	*Pounds.*	*Per cent.*	*Pounds.*					
21	Oonan 11th of Hood Farm 143105	5,141.1	4.9	250.522	8.7	446.462	$75.157	$13.394	$88.551	$30.056	$58.495
22	Airy's Vinie Hugo 177868	5,437.0	4.3	234.234	8.6	468.564	70.270	14.057	84.327	28.937	55.390
23	Blossom of Florence 164108	4,906.3	4.8	236.632	8.7	428.907	70.990	12.867	83.857	29.901	53.956
24	Chroma 3d of Hood Farm 134744	5,080.8	3.8	195.809	8.5	429.942	58.743	12.898	71.641	27.689	43.952
25	Dorinda Darling 146249	5,555.0	4.6	255.321	8.4	468.176	76.596	14.045	90.641	29.048	61.593
26	Prize May's Duchess 2d 132976	5,725.0	4.4	254.500	8.8	501.733	76.350	15.052	91.402	29.804	61.598
27	Yoethe Koffee of Lawn 121540	4,054.6	4.9	200.630	8.7	351.511	60.189	10.545	70.734	26.691	44.043
28	Bloomfield Oonan 163281	4,108.1	5.1	208.246	8.8	359.780	62.474	10.793	73.267	27.678	45.589
29	Clarion Girl 161289	4,497.1	4.8	214.896	8.7	390.714	64.469	11.721	76.190	26.879	49.311
30	Ella Golden 149309	5,120.7	4.8	246.523	8.6	441.280	73.957	13.238	87.195	29.251	57.944
31	Aaron's Queen 155591	4,947.9	4.8	238.574	8.8	436.458	71.572	13.094	84.666	28.471	56.195
32	Dela S. of Eau Claire 128005	5,042.7	4.2	210.532	8.9	450.184	63.160	13.506	76.666	27.384	49.282
33	Lassie Easter Pogis 143523	4,313.8	5.0	217.851	8.7	376.943	65.355	11.308	76.663	26.581	50.082
34	Rosa's Glory 157795	4,923.8	4.2	208.462	8.6	425.526	62.539	12.766	75.305	27.739	47.566
35	Annie of Seekonk 159124	4,994.2	4.8	240.273	8.9	444.386	72.082	13.332	85.414	28.746	56.668
36	Zaza of Menlo 147312	4,653.7	4.2	193.871	8.9	413.403	58.161	12.402	70.563	30.226	40.337
37	Loretta D. 141708	5,802.7	4.8	280.161	9.0	522.895	84.048	15.687	99.735	31.989	67.746
38	Oonan 23d of Hood Farm 163228	5,087.0	4.8	246.438	9.0	458.500	73.931	13.755	87.686	29.339	58.347

39	**Diploma's Brown Lassie 166688**	5,212.7	5.1	264.879	8.8	456.731	79.464	13.702	93.166	30.270	62.896
40	**Baronetti of Ingleside 132059**	4,916.2	5.1	248.788	8.9	436.631	74.636	13.099	87.735	29.167	58.568
41	**Gorgeous Rosebud 181095**	5,075.7	4.0	204.247	8.5	428.945	61.274	12.868	74.142	29.334	44.808
42	**Hoodoo Jane 161291**	4,712.4	4.6	218.128	8.8	414.204	65.438	12.426	77.864	26.057	51.807
43	**Diploma's Brown Bessie 164887**	5,095.6	4.7	243.375	8.9	453.695	73.013	13.611	86.624	29.595	57.029
44	**King's Gazelle Fawn 153509**	4,680.5	5.0	234.246	9.0	417.674	70.274	12.530	82.804	31.045	51.759
45	**Eurybia 143822**	5,439.6	4.8	263.557	8.8	477.563	79.067	14.327	93.394	30.630	62.764
	BROWN SWISS.										
1	Nellie Howlas 1621	6,126.4	3.4	209.798	8.5	523.621	62.939	15.708	78.647	33.489	45.158
2	Folie 1552	4,403.0	3.9	171.468	8.8	386.397	51.440	11.591	63.031	28.961	34.070
3	Maud H. 1283	4,618.6	3.8	177.331	9.3	430.205	53.199	12.906	66.105	32.205	33.900
4	Miss Laura D. 1401	5,435.6	3.6	197.688	8.9	481.631	59.306	14.449	73.755	34.242	39.513
5	Florine 12th 1408	5,924.5	3.4	201.523	8.9	529.847	60.457	15.895	76.352	35.574	40.778
	HOLSTEIN-FRIESIANS.										
6	Jolie 4th's Pauline De Kol 40399	6,174.5	3.5	213.752	7.7	475.039	64.126	14.251	78.377	32.798	45.579
7	Dorinda De Kol 2d 54882	5,659.0	3.2	180.965	7.7	433.738	54.290	13.012	67.302	34.675	32.627
8	Jolie Johanna 36779	6,630.6	3.3	221.649	8.2	545.451	66.495	16.364	82.859	34.516	48.343
9	Daisy Lamb Pieterje De Kol 46182	6,040.0	3.1	188.526	7.6	460.752	56.558	13.823	70.381	32.662	37.719
10	Joe Bach Josephine 46940	6,236.4	3.2	198.586	8.5	527.160	59.576	15.815	75.391	34.539	40.852
11	Bessie Wayne's Champion	6,522.9	3.3	215.634	8.4	550.934	64.690	16.528	81.218	34.700	46.518
12	Anchalette De Kol 43970	6,405.1	3.8	245.303	7.9	503.240	73.591	15.097	88.688	34.165	54.523
13	Maple Croft's De Kol Perfection 40309	6,929.4	3.7	254.605	7.6	528.885	76.382	15.867	92.249	35.232	57.017
14	Lady Truth Gerben Mechthilde 48037	6,311.8	3.1	197.950	7.6	477.420	59.385	14.323	73.708	33.571	40.137
15	Heeringer's Pauline 2d 53146	6,792.3	3.5	239.617	8.3	566.272	71.885	16.988	88.873	35.619	53.254
16	De Kol's De Jung 47052	5,671.8	3.5	200.281	7.8	441.794	60.084	13.254	73.338	33.416	39.922
17	Mary of Glencoe 70680	6,607.9	3.4	222.443	7.8	514.406	66.733	15.432	82.165	34.817	47.348
18	Hadria 2d 51356	6,233.2	3.6	227.101	8.1	507.440	68.130	15.223	83.353	34.464	48.889
19	Sally Clothilde 42717	5,853.3	3.6	209.422	8.2	477.848	62.827	14.335	77.162	33.956	43.206
20	Shadybrook Gerben 43753	8,101.7	3.5	282.601	7.7	620.534	84.780	18.616	103.396	36.573	66.823
	SHORTHORNS.										
46	Mary	4,508.4	3.7	166.127	8.6	387.226	49.846	11.617	61.463	29.756	31.707
47	Fillpail 2d of Spencer Place	4,139.2	3.8	158.626	8.6	356.490	47.588	10.695	58.283	27.816	30.467
48	Kitty Clay 12th [b]	1,310.8	4.0	52.665	7.9	104.006	15.800	3.120	18.920	11.229	7.691
49	Mary Ann	4,166.2	4.0	165.434	8.7	361.271	49.630	10.838	60.468	30.883	29.585
50	Kitty Clay 10th	4,093.2	3.5	143.598	8.8	359.921	43.079	10.797	53.876	30.086	23.790
51	Eva S. 10th	5,023.2	3.9	195.233	8.5	427.511	58.569	12.825	71.394	33.211	38.183
52	Rowena 2d	4,053.0	4.3	172.399	8.7	352.302	51.720	10.569	62.289	28.819	33.470
53	Janesville Champion Rose 102d	3,563.5	3.6	128.671	8.4	300.208	38.601	9.006	47.607	24.509	23.098
54	Janesville Champion Rose 125th	4,584.6	3.2	145.047	8.5	390.379	43.514	11.711	55.225	25.048	30.177
56	Young Mary 33d of Oakland	4,587.8	3.4	154.956	8.5	389.720	46.487	11.691	58.178	26.911	31.267
57	44th Profitable of Oakland	4,083.0	3.7	151.005	8.7	356.442	45.301	10.693	55.994	28.770	27.224
58	Lady Steele	4,153.7	3.7	152.965	8.6	357.915	45.890	10.737	56.627	27.699	28.928
59	Bella of York	3,796.5	3.8	144.869	9.0	337.353	43.461	10.120	53.581	27.802	25.779
60	Daisy Dean	4,236.3	3.7	156.221	8.8	372.331	46.866	11.170	58.036	26.953	31.083

[a] Difference between value of products and cost of feed.

[b] Died August 14, 1904.

Totals for individuals in Class B, for the economic production of milk for all purposes related to dairying, 120 days—Continued.

Official No.	Name and Herd Record No.	Total yield of milk.	Average fat in milk.	Total yield of fat.	Average solids not fat.	Total yield of solids not fat.	Value of fat at 30 cents per pound.	Value of solids not fat at 3 cents per pound.	Total value of products.	Total cost of feed.	Net profit.
	SHORTHORNS—continued.										
		Pounds.	*Per cent.*	*Pounds.*	*Per cent.*	*Pounds.*					
63	16th Belle of Trowbridge	5,207.4	4.0	208.443	8.6	446.352	$62.533	$13.390	$75.923	$28.574	$47.349
64	Lygia	3,476.1	4.0	139.168	8.7	302.103	41.750	9.063	50.813	26.599	24.215
65	Eleanor Lee 2d	4,448.1	3.7	165.881	8.8	389.241	49.764	11.677	61.441	24.004	37.437
66	Pale Face	4,766.9	3.8	180.067	8.6	410.089	54.020	12.303	66.323	24.530	41.793
68	Lady Clara 13th	4,948.7	3.3	165.768	8.4	417.152	49.730	12.514	62.244	25.444	36.800
69	Lady Clare 4th	4,159.2	3.6	151.272	8.7	360.715	45.382	10.821	56.203	27.008	29.195
70	Iris 2d	3,612.4	3.3	118.720	8.3	300.588	35.616	9.017	44.633	22.792	21.841
71	Kitty Clay 20th	4,416.5	3.2	141.863	8.6	381.168	42.559	11.435	53.994	28.638	25.356
72	Viola	3,898.8	4.1	158.521	8.7	341.837	47.563	10.255	57.818	25.254	32.564
73	Kitty Clover 3d	4,052.1	3.8	155.310	8.6	347.060	46.593	10.412	57.005	26.256	30.749
74	Red Bird	4,514.9	3.6	162.210	8.6	389.527	48.663	11.686	60.349	25.473	34.876

Herd averages in Class B.

Breed.	Average yield of milk per cow.	Average yield of milk per cow per day.	Average fat in milk.	Average yield of fat per cow.	Daily average yield of fat per cow.	Average solids not fat.	Average yield of solids not fat per cow.	Daily average yield of solids not fat per cow.	Value of fat per cow.	Value of daily yield of fat per cow.	Value of solids not fat per cow.	Value of daily solids not fat per cow.	Value of total products per cow.	Value of daily total products per cow.	Average cost of feed per cow.	Average daily cost of feed per cow.	Average net profit per cow.[a]	Average daily net profit per cow.[a]
	Lbs.	*Lbs.*	*Per ct.*	*Lbs.*	*Lbs.*	*Per ct.*	*Lbs.*	*Lbs.*										
Jersey	4,981.0	41.5	4.7	232.43	1.936	8.8	436.093	3.634	$69.73	$0.58	$13.08	$0.109	$82.81	$0.689	$28.90	$0.240	$53.91	$0.45
Holstein-Friesian	6,411.7	53.4	3.4	219.89	1.832	7.9	508.727	4.239	65.97	.55	15.26	.127	81.23	.677	34.38	.286	46.85	.39
Brown Swiss	5,301.6	44.2	3.6	191.56	1.596	8.9	470.340	3.919	57.47	.48	14.11	.117	71.58	.597	32.89	.274	38.69	.32¼
Shorthorn[b]	4,152.0	34.6	3.6	153.41	1.279	8.6	357.556	2.979	46.02	.38	10.72	.089	56.74	.473	26.56	.221	30.18	.25

[a] Difference between value of products and cost of feed.

[b] Twenty-four cows after August 14, 1904.

CLASS A.

This test was "for demonstrating the economic production of butter fat and butter." Entries: 25 Jerseys, 15 Holsteins, and 5 brown Swiss.

A Jefferson guard was always present in the barn, whose duty it was to see that no feed was given except that which had been weighed and charged. The cows were milked three times a day, the noon, night, and morning milkings constituting a day's yield. Each milking was weighed and sampled and the samples were sealed. The composite sample of the three milkings was tested for fat and solids not fat. These analyses were made independently by two assistants. In this test butter at 25 cents per pound was the only product credited to the cow. The butter yield was calculated from the butter fat in the milk on the basis of 83 per cent fat in butter. In making the calculation, however, allowance was made for the amount of butter remaining in the skim milk and buttermilk on the following basis: The skim milk equals 85 per cent of the whole milk, and it is one-tenth of 1 per cent fat; the buttermilk is 10 per cent of the whole milk, and it is two-tenths of 1 per cent fat. The overrun, therefore, varied according to the percentage of fat found in the whole milk.

The feed weighed to each cow was charged against her, based on the commercial values of the different feeds. The awards were based on the net profit obtained by subtracting the cost of the feed from the value of the butter.

CLASS B.

This test was "for the economic production of milk for all purposes related to dairying." Entries: Twenty-five Jerseys, 25 Shorthorns, 15 Holstein-Friesians, 5 Brown Swiss. In this class the results were based upon the entire amount of solids contained in the whole milk, credited at 30 cents per pound for the fat and 3 cents per pound for the solids other than fat, the sum of these two credits, less the cost of feed, giving the net profit on each cow. The same routine governed in this class as in Class A, with the addition in Class B of a lactometer reading for solids not fat in the laboratory, made from the composite sample of the three milkings of the day for each cow. Thus the day's milk yield of each cow was multiplied by the percentage of fat as found by the Babcock test, the result being placed to the cow's credit as the amount of fat produced. Also the day's milk yield of each cow was multiplied by the per cent of solids not fat contained in the milk and the result placed to her credit as the amount of solids not fat produced. At the end of the one hundred and twenty days the total pounds of fat and solids not fat were valued as previously stated.

CLASS C.—THE DUAL-PURPOSE TEST.

This test was "for the demonstration of all the products of the cow, viz, beef and milk, with their calves judged for their beef merits." Entries: Twenty-five Shorthorns, 5 Holsteins, 5 Brown Swiss.

The 25 Shorthorns entered in Class C consisted of 21 of the animals taking part in Class B, the 4 cows out being Nos. 71, 72, 73, and 74, with Nos. 55, 61, 62, and 67 substituted. No. 48, dying the early part of August, is not included in any averages here given, making the herd number 24. All the five Brown Swiss, Nos. 1, 2, 3, 4, and 5, were entered, and five of the Holsteins, Nos. 6, 7, 8, 9, and 10.

The results, based on value of products (fat at 30 cents per pound, solids not fat at 3 cents per pound, and gain in live weight at 4 cents per pound), less cost of feed, were an average net profit per cow of Shorthorn, $29.22; Brown Swiss, $41.93; Holstein, $44.81.

Average per cent per cow for dairy and beef points.

	Dairy.	Beef.	Total.
	Per ct.	*Per ct.*	*Per ct.*
Shorthorn	22.2	21.8	44.0
Holstein	34.0	26.0	60.0
Brown Swiss	31.7	19.0	50.7

Average gain in live weight per cow for 120 days was: Shorthorn, 82 pounds; Holstein, 94.8 pounds; Brown Swiss, 40.5 pounds.

Best dairy cows: Shorthorn, 16th Belle of Trowbridge, net profit $52.91; Holstein, Jolie Johanna 36779, $51.82; Brown Swiss, Nellie Howlas 1621, $48.12.

Champion dual-purpose cow: Rowena 2d, Shorthorn.

O